ACTAAP

Arkansas Comprehensive Testing, Assessment and Accountability Program

Released Item Booklet

Benchmark Examination
Middle Level (Grade 8)

April 2003 Administration

Arkansas Department of Education

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PART I Overview

The criterion-referenced tests implemented as part of the **Arkansas Comprehensive Testing, Assessment and Accountability Program** (ACTAAP) are being developed in response to Arkansas Legislative Act 1172, which requires the State Board of Education to develop a comprehensive testing program that includes performance assessment of the core concepts, abilities, thinking, and problem-solving skills defined by the Arkansas Curriculum Frameworks.

As part of this program, all grade 8 students in Arkansas public schools participated in the *Middle Level (Grade 8) Benchmark Examination* in April 2003.

This *Released Item Booklet* for the *Middle Level (Grade 8) Benchmark Examination* contains test questions or items that were asked of students during the April 2003 operational administration. The test items included in Part II of this booklet are those items that contributed to the student performance results for that administration.

Students had approximately two hours to take each test session during the three days of testing in April 2003. Students were permitted to use a calculator for the Mathematics items (both multiple-choice and open-response), with the exception of questions 1 – 8. Students were also supplied with a reference sheet to be used during the Mathematics sessions so that all students would have equal access to this information during testing. (See the reference sheet on page 23 of this booklet.) All of the Mathematics and Reading multiple-choice items within this booklet have the correct response marked with an asterisk (*). The open-response items for Mathematics and Reading and the two essay topics for Writing are listed with scoring guides (rubrics) immediately following. These rubrics provide information on the scoring model used for each subject, with the scoring model for Writing defining the overall curricular and instructional link for that subject with the *Language Arts Curriculum Framework*. The domain scoring model, implemented within Arkansas for a number of years, illustrates the appropriate instructional approaches for Writing within the state.

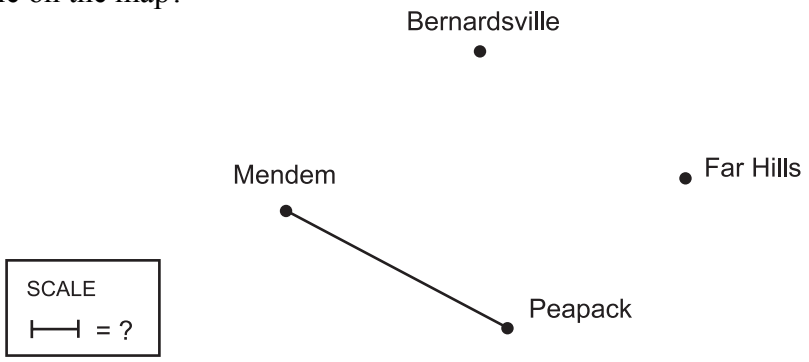
The development of the *Middle Level (Grade 8) Benchmark Examination* was based on the Arkansas Curriculum Frameworks. These frameworks have common distinct levels: *Strands* to be taught in concert, *Content Standards* within each Strand, and *Student Learning Expectations* within each Content Standard. Abridged versions of the *Mathematics Curriculum Framework* and *Language Arts Curriculum Framework—Reading: Strand 2* can be found in Part III of this booklet. It is important to note that these abridged versions list only the predominant Strand, Content Standard, and Student Learning Expectation associated with each item. However, since many key concepts within the Arkansas Curriculum Frameworks are interrelated, in many cases there are other item correlations or associations across Strands, Content Standards, and Student Learning Expectations.

Part IV of the *Released Item Booklet* contains a tabular listing of the Strand, Content Standard, and Student Learning Expectation that each question was designed to assess. The multiple-choice and open-response items found on the *Middle Level (Grade 8) Benchmark Examination* were developed in close association with the Arkansas education community. Arkansas teachers participated as members of Content Advisory Committees for each subject area, providing routine feedback and recommendations for all items. The number of items associated with specific Strands, Content Standards, and Student Learning Expectations was based on approximate proportions suggested by the Content Advisory Committees, and their recommendations were accommodated to the greatest extent possible given the overall test design. Part IV of the *Released Item Booklet* provides Arkansas educators with specific information on how the *Middle Level (Grade 8) Benchmark Examination* items align or correlate with the Arkansas Curriculum Frameworks to provide models for classroom instruction.

PART II Released Items (Mathematics)

CALCULATOR NOT PERMITTED — ITEMS 1 – 8

1. Ian knows that the distance from Mendem to Peapack is 15 miles. What is the **best** estimate for the distance on the scale on the map?



A. ⊢⊣ = 15 miles

B. ⊢⊣ = 5 miles

* C. ⊢⊣ = 3 miles

D. ⊢⊣ = 1 mile

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2. Laurie used a survey as the basis of a term paper about student opinion on fast food. Which of the following techniques would have given Laurie the **best** sample?

A. Interview the 25 students in her homeroom class.

B. Interview 25 students at a high school sporting event.

C. Interview the first 25 students entering a local fast food restaurant.

* D. Interview 25 students randomly selected from the high school directory.

3. Brooke knows the formula $d = rt$ where d is distance, r is speed and t is time. Brooke knows her distance and time and wants to calculate her speed. Which of the following formulas shows speed as a function of time and distance?

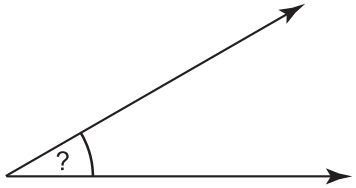
A. $r = dt$

* B. $r = \frac{d}{t}$

C. $r = \frac{t}{d}$

D. $r = d - t$

4. Which of the following is closest to the measure of the angle below?



* A. 30°

B. 60°

C. 90°

D. 120°

5. How many faces does a square pyramid have?

A. 3

B. 4

* C. 5

D. 6

6. Olivia wanted to construct a statistical graph to show the percentage of funds earned by each of the classes in an annual candy sale fundraiser. Which of the following graphs will **best** show this information?

* A. a circle graph

B. a line graph

C. a scatter plot

D. a stem-and-leaf plot

7. All of the following values represent the distance from the sun to Neptune. Which is correctly stated in scientific notation?

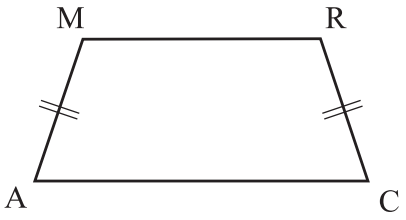
A. 0.28×10^{10} miles

* B. 2.8×10^{9} miles

C. 2800×10^{6} miles

D. 2,800,000,000 miles

8. Which of the following terms **best** describes quadrilateral AMRC?



A. kite

B. rectangle

C. rhombus

* D. trapezoid

PART II Released Items (Mathematics)

CALCULATOR PERMITTED — ITEMS 9 – 40

9. Using the following number pattern

1, 7, 49, 343 . . .

what is the 8th number in the sequence?

A. 117,649
B. 822,763
* C. 823,543
D. 5,764,801

10. Manuel's father wants to add 3 inches of asphalt to his driveway to make it 3 inches thicker. If his driveway is 48 feet long and 18 feet wide, how many **cubic yards** of asphalt will he need?

* A. 8
B. 96
C. 288
D. 2,592

11. The manager of the local farm supply store ordered chicks this spring. He orders the chicks in sets of 6. He sold 21 different customers 2 chicks apiece; he sold out his order. How many sets of 6 chicks did he order?

A. 6
* B. 7
C. 21
D. 42

12. Jamal's school is going to do a drawing competition to determine which student will represent the school at a city-wide rally organized to clean up the city parks. Each student has an equal chance of being selected. There are 500 students in the school. What is the probability that any one of the 29 students in Jamal's class will be selected to represent his school?

A. 1%
* B. 6%
C. 10%
D. 28%

13. Which one of the following figures has the fewest number of parallel sides?

A. rhombus
* B. trapezoid
C. rectangle
D. square

14. Werner finishes his walk at 5:00 p.m. If he has been walking for 2 hours and 33 minutes, when did he start?

* A. 2:27 p.m.
B. 2:33 p.m.
C. 3:27 p.m.
D. 4:33 p.m.

15. As Joe left school on Thursday, he was told that there would be a 50% chance that school will be closed on Friday due to a severe weather forecast. Which one of the following statements **best** represents this situation?

A. It is likely that school will open for only half of the day on Friday.

B. The school will probably be closed on Friday.

C. The school will probably be open on Friday.

* D. It is equally likely that school will be open or closed on Friday.

16. A light-year equals about six trillion miles. How would you write this in scientific notation?

A. $6 \times 1{,}000{,}000{,}000{,}000$

B. 6×10^{10}

* C. 6×10^{12}

D. 6×10^{14}

17. If the cost of a banana, an apple, and an orange is $x¢$, $y¢$, and $z¢$, respectively, what does the equation $3x + 2y = 4z$ mean?

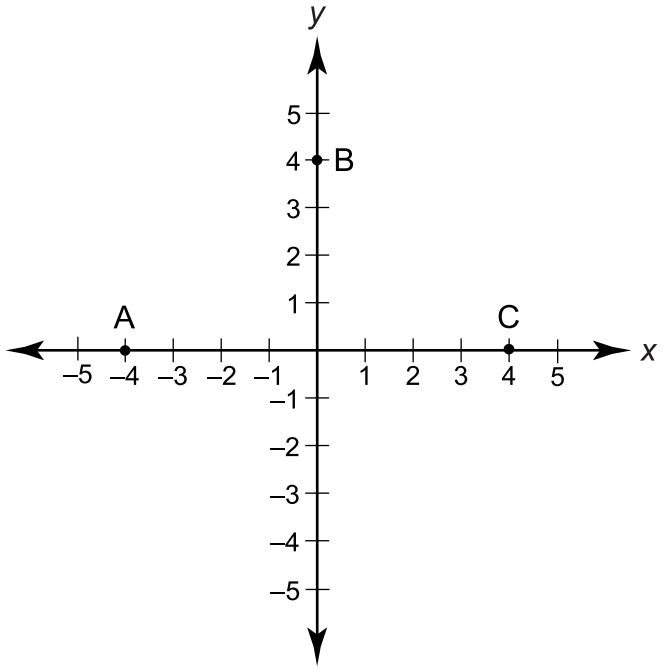
* A. The cost of 3 bananas and 2 apples is the same as that of 4 oranges.

B. The cost of 3 bananas and 2 oranges is the same as that of 4 apples.

C. The cost of 3 apples and 2 oranges is the same as that of 4 bananas.

D. The cost of 3 apples and 2 bananas is the same as that of 6 oranges.

18. Max is plotting a square in the coordinate system shown below.



Three of its vertices are designated as A, B, and C. Which of the following would represent the coordinates of the 4th vertex of the square?

A. (0, 4)

* B. (0, –4)

C. (4, 0)

D. (2, 2)

19. Peter bought 2 identical shirts and 1 jacket for a total of \$75. The next day he bought 5 more shirts (identical to the first 2), also for a total of \$75. How much did the jacket cost?

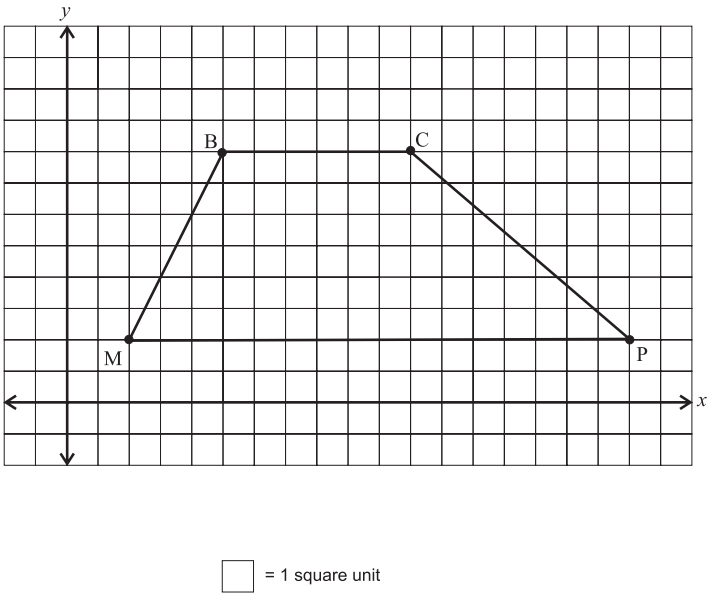
A. \$30

B. \$35

C. \$40

* D. \$45

20. What is the area of the quadrilateral MBCP?



A. 72 square units

* B. 66 square units

C. 57 square units

D. 36 square units

21. Malcolm and his cousin James wanted to buy a new music CD. They checked prices at five different stores. The first store they visited had the CD priced at $13.00, the second store at $13.50, the third store at $13.99, the fourth store at $14.99, and the fifth store had the CD priced at $7.00. What was the median price of the CD?

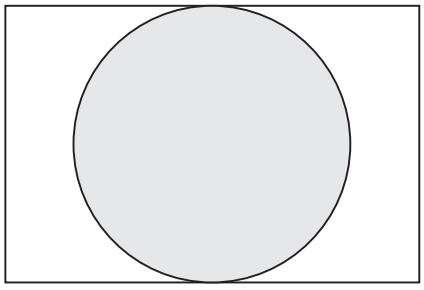
A. $7.00

B. $12.50

* C. $13.50

D. $14.99

Use the diagram below to answer question 22.



22. The area of the rectangle shown above is 24 square units. Which of the following would be the **best** estimate of the area of the circle inside the rectangle?

A. 2 square units

B. 4 square units

* C. 12 square units

D. 24 square units

23. Andrew washed one of his mother's new rectangular place mats in hot water, and it shrank. If the original dimensions of the place mat were 16 inches by 12 inches and each dimension lost one inch, what was the difference in the area of the place mat before and after he washed it?

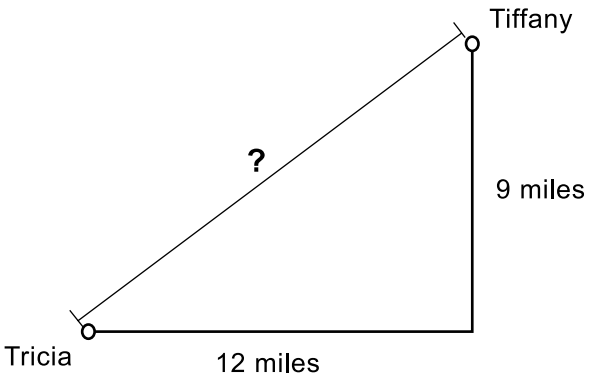
A. 2 square inches

B. 4 square inches

* C. 27 square inches

D. 28 square inches

24. Tricia lives 12 miles west and 9 miles south of Tiffany. What is the distance (in miles) between where Tricia and Tiffany live?



A. 3

B. 11

* C. 15

D. 21

25. How is the number *twenty-two million eight hundred ninety thousand six hundred* written in scientific notation?

A. 2.28906×10^5

B. 2.28906×10^6

* C. 2.28906×10^7

D. 2.28906×10^8

26. Pluto requires 2,171,250 Earth hours to orbit the sun. Which of the following units would be the **most** manageable for measuring this time period?

A. minutes

B. days

C. weeks

* D. years

27. Christine's alarm clock did not go off, making her 3 hours late for work. She makes $15.00 per hour. She drove too fast and she received a $75 speeding ticket. How much money did being late cost Christine?

A. $ 90

* B. $120

C. $240

D. $270

28. What is the distance between –2 and 5 on a number line?

A. 3

B. 4

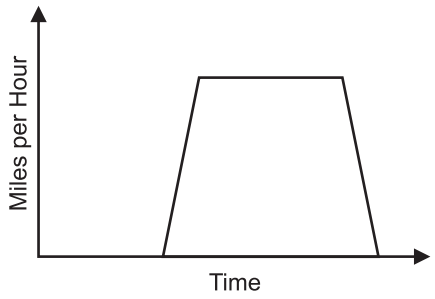
* C. 7

D. 10

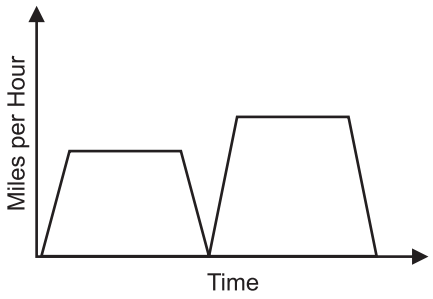
PART II Released Items (Mathematics)

29. Each graph below describes a trip that Lawanda made to her grandmother's house. On which of the trips did Lawanda stop for lunch on the way to her grandmother's house?

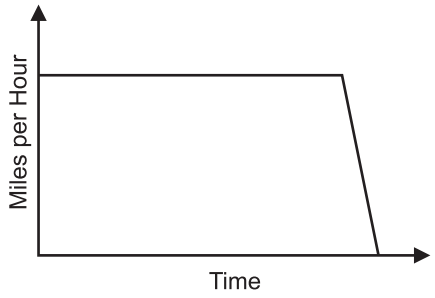
A.



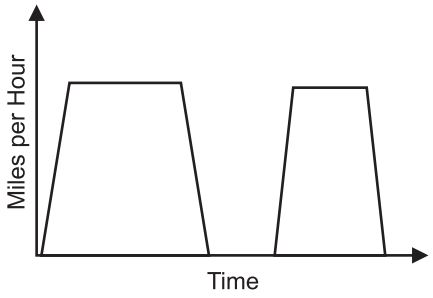
B.



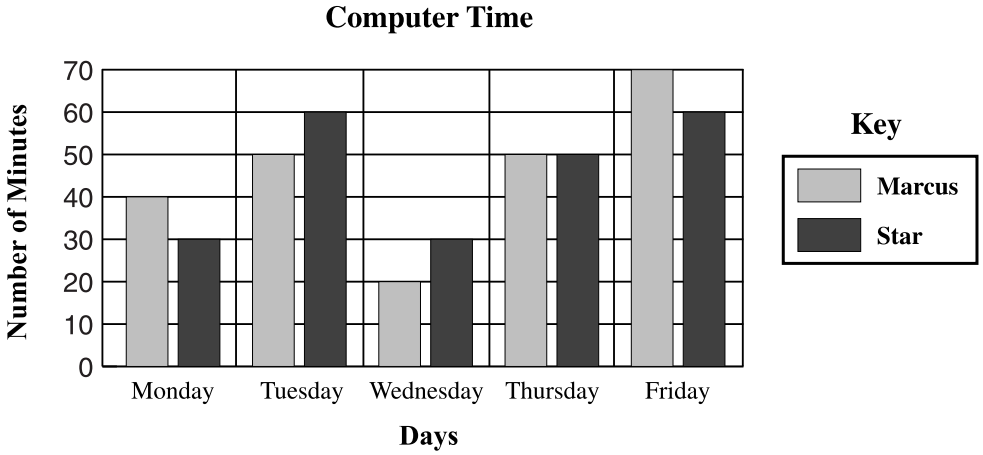
C.



* D.



Use the graph below to answer question 30.



30. The graph above shows the amount of time that Marcus and Star each spent on the computer during one week while working on a science project. Which of the following statements is true about Marcus's and Star's computer time?

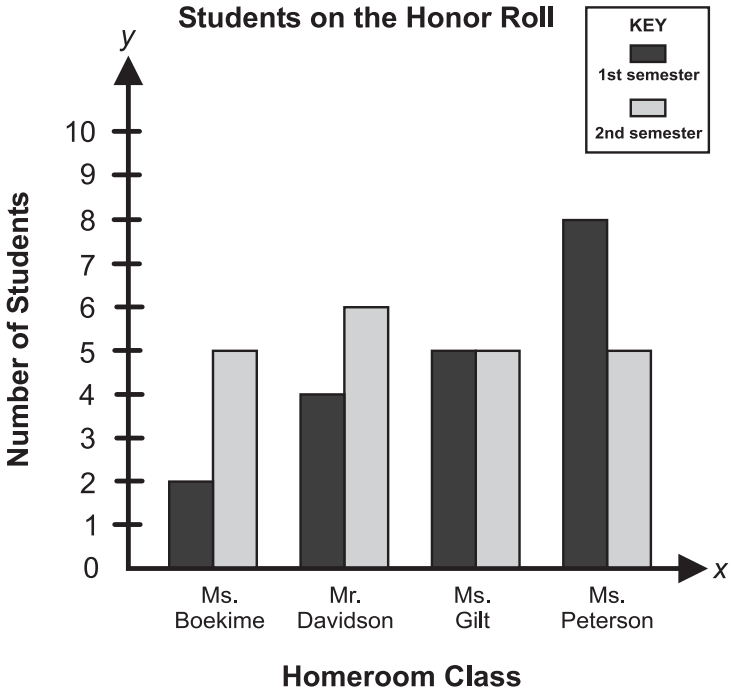
A. Star spent more time on the computer than Marcus.

B. Marcus spent more time on the computer than Star.

C. Marcus spent less than 200 minutes on the computer.

* D. Marcus and Star spent the same amount of time on the computer.

Use the graph below to answer question 31.



31. The double bar graph above shows the number of students on the honor roll for the two semesters of four homerooms at Montera Middle School. Which homeroom had the **greatest** increase in the number of students on the honor roll?

* A. Ms. Boekime

B. Mr. Davidson

C. Ms. Gilt

D. Ms. Peterson

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32. Ms. Jackson has 34 students, and Mr. Anderson has 27 students. A total of 49 students are going on a field trip from both classes. Mr. Anderson will not be taking 5 of his students. How many of Ms. Jackson's students will **not** be going on the field trip?

A. 5

* B. 7

C. 12

D. 17

33. Linda is buying candy for a party. One type of candy is sold in packages of 6 pieces, another is sold in packages of 4 pieces, and the third type is sold in packages of 3 pieces. If Linda wants to buy the same amount of each type of candy, what is the **smallest** amount of each type of candy that she can buy?

A. 6 pieces

* B. 12 pieces

C. 24 pieces

D. 72 pieces

34. Luna decided to increase the length of time she rode her bicycle by half an hour. To do this, each day she added two minutes to the length of time that she rode her bicycle, starting on May 1st. On what day will she have increased the time she rode the bicycle by half an hour?

A. May 30th

* B. May 15th

C. May 10th

D. May 5th

35. The hiking club at Amelia Middle School is building a recycling bin. On the scale drawing, the bin is 8 centimeters tall and 24 centimeters long. If the actual bin is to be 2 meters tall, how long will it be?

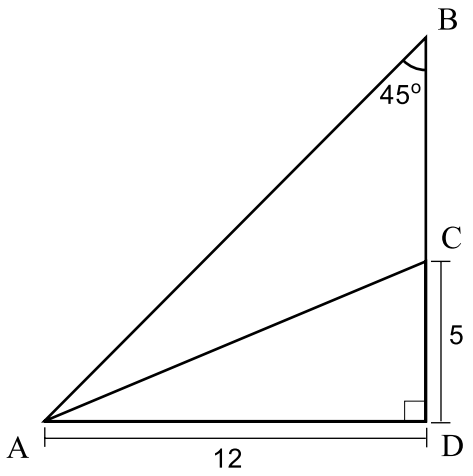
* A. 6 meters

B. 12 meters

C. 16 meters

D. 18 meters

Use the diagram below to answer question 36.



36. What is the distance from B to C in the triangle shown above?

A. 5 units

* B. 7 units

C. 12 units

D. 13 units

37. Which of the following could be the next number in the sequence

{11, 13, 16, 20, 25 . . .}?

A. 26

B. 27

C. 30

* D. 31

38. A box contains 2 yellow, 6 orange, and 5 red crayons. If a crayon is randomly drawn from the box, what is the probability it will **not** be red?

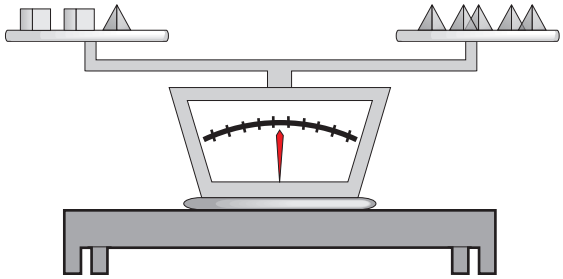
A. $\frac{5}{13}$

* B. $\frac{8}{13}$

C. $\frac{5}{8}$

D. $\frac{8}{5}$

Use the diagram below to answer question 39.



39. The weight of 1 pyramid and 2 cubes is equal to the weight of 5 pyramids. How many pyramids would weigh the same as 1 cube?

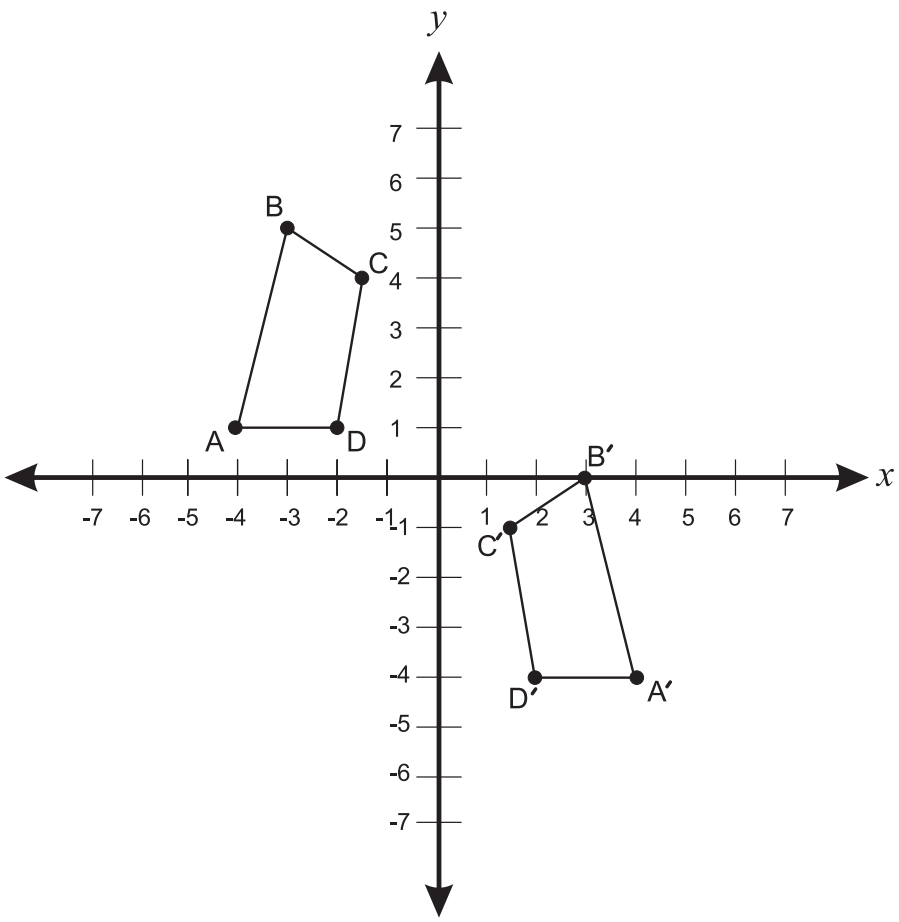
A. 1

* B. 2

C. 4

D. 5

Use the diagram below to answer question 40.



40. Which of the following would transform quadrilateral ABCD to quadrilateral A′B′C′D′?

A. a reflection across the *y*-axis and a reflection across the *x*-axis

* B. a reflection across the *y*-axis and a slide down 5 units

C. a reflection across the *x*-axis and a slide up 5 units

D. a slide down 5 units and a slide right 5 units

PART II Released Items (Mathematics)

MATHEMATICS OPEN-RESPONSE ITEM A

A. On Tuesday, Bailey's Ice Cream Parlor gave away free ice cream cones to every 6th customer and free banana splits to every 15th customer to celebrate their 25th year in business.

1. If 125 customers visited Bailey's on Tuesday, what were the numbers of the customers who received both a free ice cream cone and a free banana split? Show your work.

2. On Wednesday, Bailey's Ice Cream Parlor gave away T-shirts and hats. Of the 85 customers, 5 received T-shirts and 12 received hats. What was the rule used to determine which customers received T-shirts? Show your work.

3. What was the rule used to determine which customers received hats? Show your work.

4. How many customers received both a hat and a T-shirt? Show your work.

BE SURE TO LABEL YOUR RESPONSES 1, 2, 3, AND 4.

RUBRIC FOR MATHEMATICS OPEN-RESPONSE ITEM A

SCORE	DESCRIPTION
4	4 points – Response contains no incorrect work.
3	3 – 3 ½ points.
2	2 – 2 ½ points.
1	½ – 1 ½ points or some minimal understanding shown.
0	No understanding shown.
B	Blank – No Response. A score of "B" will be reported as a score "NA" (No Attempt – Zero Score).

Solution

Part 1: The 30th, the 60th, the 90th, and the 120th customers received both the cone and the banana split.

Work/Explanation: Multiples of 6 (≤125):
6, 12, 18, 24, 30, 36, 42, 48, 54, 60, 66, 72, 78, 84, 90, 96, 102, 108, 114,120

Multiples of 15 (≤125):
15, 30, 45, 60, 75, 90, 105, 120
Therefore, the 30th, 60th, 90th, and 120th customers received both items.

OR

The least common multiple of 6 and 15 is 30. So the 30th, the 60th, the 90th, and the 120th customer received both an ice cream cone and a banana split.

OR

Equivalent work or explanation.

Part 2: Every 17th customer received a T-shirt.
(Note: Every 15th customer or every 16th customer is also acceptable.)

Work/Explanation: 85/5 = 17.

OR

Equivalent work or explanation.

Part 3: Every 7th customer received a hat.

Work/Explanation: 85/12 = 7.08.

OR

Equivalent work or explanation.

Part 4: No customers received both a T-shirt and a hat.

Work/Explanation: Multiples of 7 (≤85): 7, 14, 21, 28, 35, 42, 49, 56, 63, 70, 77, 84.

Multiples of 17 (≤85): 17, 34, 51, 68, 85.

OR

LCM (7,17) = 17 × 7 = 119, so with only 85 customers, no one received both.

OR

Equivalent work or explanation.
(Note: If the answer to Part 2 is 15 or 16, the answer to Part 4 is also "No one will receive both" since the LCM's > 85.)

Scoring (4 total points possible)

Note: Give credit for procedure when correct method and input is used. Work might include a calculation or copy error. Also, the answer to Part 4 may be based on incorrect answers to Parts 2 and 3.

Parts 1 – 4: (1 point possible for each part)

- ½ point for correct answer,

AND

- ½ point for correct procedure.

PART II Released Items (Mathematics)

MATHEMATICS OPEN-RESPONSE ITEM B

B. Mr. Teague glued 6 identical cubes together to make a rectangular prism. Each cube had an edge length of 1 centimeter. He then painted the outside of the prism.

1. If the final dimensions of the rectangular prism were 3 centimeters by 2 centimeters by 1 centimeter, how many of the faces of the 6 original cubes were painted? Show your work or provide an explanation for your answer.

2. Did any cube have all six faces painted? Explain your answer.

BE SURE TO LABEL YOUR RESPONSES 1 AND 2.

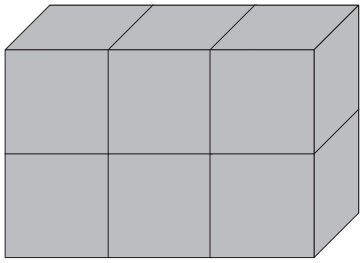
RUBRIC FOR MATHEMATICS OPEN-RESPONSE ITEM B

SCORE	DESCRIPTION
4	4 points.
3	3 points.
2	2 points.
1	1 point or some minimal understanding shown.
0	No understanding shown.
B	Blank – No Response. A score of "B" will be reported as a score "NA" (No Attempt – Zero Score).

Solution

Part 1: 22 faces

Work/Explanation: Correct drawing or description of 3 × 2 × 1 rectangular prism:



- Front + back faces = 6 + 6 = 12
- Top + bottom faces = 3 + 3 = 6
- L. side + R. side faces = 2 + 2 = 4
- Either of the following:
  - 12 + 6 + 4 = 22 faces, or
  - Equivalent work or explanation.

Part 2: No cube had all six faces painted.

Work/Explanation: Every cube had at least 1 inside face.

OR

Equivalent work or explanation.

Scoring (4 points possible)

Part 1: (2 points possible)

- 1 point for correct answer of 22 faces.

AND

- 1 point for correct and complete procedures for finding number of faces: Correct 3 × 2 × 1 rectangular prism drawn or described and calculation of number of faces on 3 sets of parallel sides.
  (Note: Give credit if correct procedure is used but work contains a calculation or counting error.)

Part 2: (2 total points possible)

If the answer in Part 1 is "22" or some correct procedures are shown (response shows understanding of rectangular prisms and correct process for finding the corresponding number of painted faces):

- 2 points for correct answer of "No" with correct explanation in Part 2.

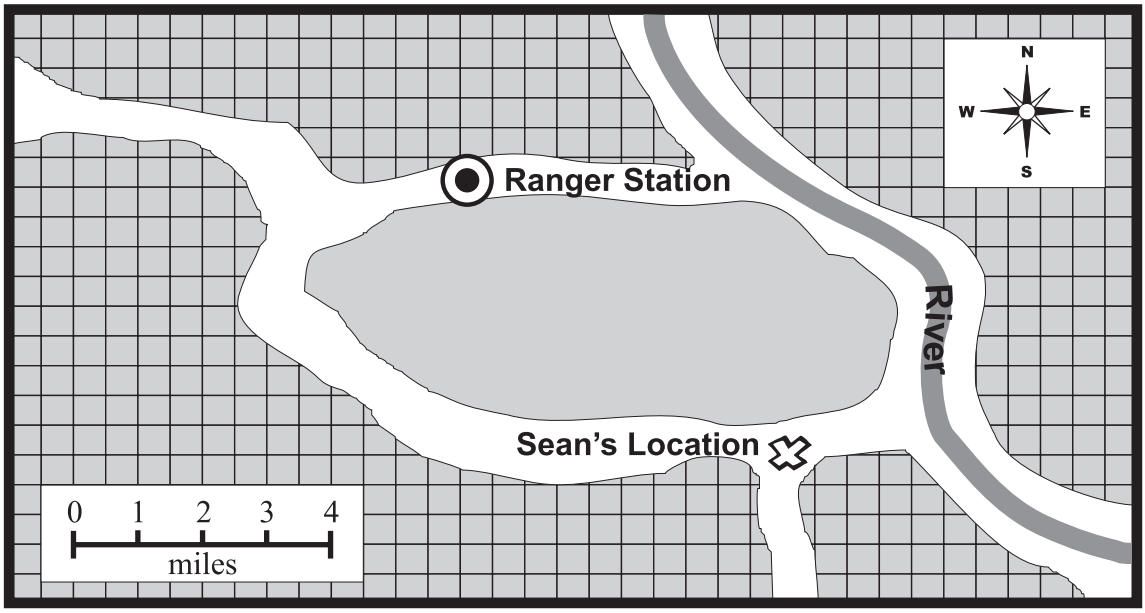
OR

- 1 point for correct answer of "No" with no correct explanation or partially correct explanation in Part 2.

If the answer in Part 1 is incorrect or missing and no correct procedure is shown:

- 1 point for correct answer of "No" with at least some correct explanation in Part 2.

MATHEMATICS OPEN-RESPONSE ITEM C



C. Sean is hiking through the woods and is using the map shown above to guide him to a ranger station. He comes to a fork in the path he is taking and stops to mark his current location. It is getting late, and he wants to be sure to take the shorter path to the station.

1. Estimate the number of degrees west of north the ranger station is in relation to Sean's current position. Explain how you found your answer.

2. Sean decides that it is too risky to cut through the woods when it is so close to nightfall. Using the scale, estimate the distance to the station if Sean takes the path heading **east** to the river and then follows the path to the ranger station.

3. Using the scale, estimate the distance to the station if Sean follows the path heading **west** to the ranger station.

4. Based on your estimations, which path will be shorter for Sean to take?

BE SURE TO LABEL YOUR RESPONSES 1, 2, 3, AND 4.

RUBRIC FOR MATHEMATICS OPEN-RESPONSE ITEM C

SCORE	DESCRIPTION
4	5 points.
3	3 – 4 points.
2	2 points.
1	1 point or some minimal understanding shown.
0	No understanding shown.
B	Blank – No Response. A score of "B" will be reported as a score "NA" (No Attempt – Zero Score).

Solution

Part 1: 40° – 50°

Explanation: A 90° angle is formed by the North and West needles of the compass. The Ranger Station could be plotted about half way between N and W.

OR

Equivalent explanation.

Part 2: 8 – 12 miles

Part 3: 11 – 15 miles

Part 4:

- If the answer to Part 2 < the answer to Part 3, the correct answer is "The path heading east to the river will be shorter."
- If the answer to Part 2 = 12 miles and the answer to Part 3 = 11 miles, the correct answer is "The path to the west will be shorter."
- If answers to Parts 2 and 3 are both 11 miles or both 12 miles, either path can be taken since the distances are equal.

Scoring (5 total points possible)

Part 1: (2 points possible)

- 1 point for answer within the correct range,

AND

- 1 point for the correct explanation.

Part 2: 1 point for answer within the correct range.

Part 3: 1 point for answer within the correct range.

Part 4: 1 point for any of the following:

- Answer of "east path" with answers to Parts 2 and 3 within the given range or ±1 and b < c.

OR

- Answer of "west path" with answers to Parts 2 and 3 within the given range or ±1 and b > c.

OR

- Answer of "either path" with answers to Parts 2 and 3 of both 11 or both 12.

MATHEMATICS OPEN-RESPONSE ITEM D

Age of Volunteer	Rating of Cereal
34	60
12	90
14	95
35	45
22	75
4	80
40	45
12	95
53	25
7	85
18	75
40	40
10	80

D. A company that makes breakfast cereal has asked volunteers of various ages to try its newest cereal and fill out a questionnaire which results in a rating of 0 to 100 for the new product. The ages of the volunteers and the ratings they gave to the cereal are shown, in no particular order, on the table above.

1. Redraw the table, organizing the data so that the ages of the volunteers are in order from youngest to oldest.

2. What general trend can be observed in the data on your chart regarding the relationship between the rating and the age of the volunteer?

3. The cereal-makers want to target the age group that liked the cereal the best. What age group should the cereal-makers target in their advertising? Give a reason for your answer.

BE SURE TO LABEL YOUR RESPONSES 1, 2, AND 3.

RUBRIC FOR MATHEMATICS OPEN-RESPONSE ITEM D

SCORE	DESCRIPTION
4	4 points – Response contains no incorrect work.
3	3 – 3 ½ points.
2	2 – 2 ½ points.
1	½ – 1 ½ points or some minimal understanding shown (i.e., student lists most of the ages in order with appropriate ratings).
0	No understanding shown.
B	Blank – No Response. A score of "B" will be reported as a score "NA" (No Attempt – Zero Score).

Solution

Part 1: Table, graph, chart or scatter plot that organizes the ages from youngest to oldest and associates each age with appropriate rating. Example:

Age of Volunteer	Rating of Cereal
4	80
7	85
10	80
12	90
12	95
14	95
18	75
22	75
34	60
35	45
40	45
40	40
53	25

Part 2: Younger volunteers give the cereal higher ratings than the older volunteers do.

Part 3: 12–14 or 4–14 since this age group gave the cereal the highest rating

OR

4–22 with very specific justification using percents (all have ratings ≥ 75)

Scoring (4 total points possible)

Part 1: 1 point for table etc. as described above (can have 1–2 minor errors or omissions).

Part 2: **(1 point possible)**

- 1 point for description of the general trend (i.e., younger volunteers like the cereal more than the older volunteers do).

OR

- ½ point for incomplete description of the general trend. (i.e., younger volunteers like the cereal more.)

Part 3: **(2 points possible)**

- 1 point for correct age group of 12–14 (young teens) or 4–14 (kids and young teens),

AND

- 1 point for correct reason for any choice given, or some understanding of target group and reason for choice shown.

PART II Released Items (Mathematics)

MATHEMATICS OPEN-RESPONSE ITEM E

E. Jason's father is having gravel delivered to his house. He must pay $75 per ton of gravel and a one-time delivery fee of $50.00.

1. How much would it cost Jason's father to have a truck driver deliver 5 tons of gravel to his house?

2. How much would it cost Jason's father to have a truck driver deliver 10 tons of gravel to his house?

3. Graph the two points from parts 1 and 2 on the grid provided, placing the number of tons of gravel on the *x*-axis and the cost on the *y*-axis. Sketch a line through the points.

4. What is the *y*-intercept of the line you sketched in part 3?

BE SURE TO LABEL YOUR RESPONSES 1, 2, 3, AND 4.

RUBRIC FOR MATHEMATICS OPEN-RESPONSE ITEM E

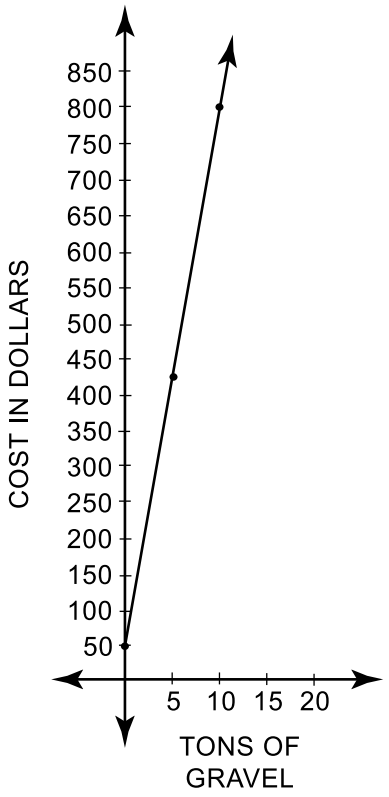
SCORE	DESCRIPTION
4	5 points.
3	3 – 4 points.
2	2 points.
1	1 point or some minimal understanding shown (i.e., Parts 1 and/or 2 incorrect due to calculation or copy error with no credit in other parts).
0	No understanding shown.
B	Blank – No Response. A score of "B" will be reported as a score "NA" (No Attempt – Zero Score).

Solution

Part 1: $425

Part 2: $800

Part 3: Graph with correct labels, two correctly plotted points, equal intervals on both axes, etc.



Part 4: The *y*-intercept is 50.

Scoring (5 total points possible)

Part 1: 1 point for correct answer of 425.

Part 2: 1 point for correct answer of 800.

Part 3: **(2 points possible based on answers–correct or incorrect–given in Parts 1 and 2)**

- 2 points for correct and complete graph (X and Y axis labeled, equal and appropriate intervals on both axes, points correctly plotted and connected).

OR

- 1 point for graph with 1–2 minor errors or omissions, but understanding of graphing is evident.

Part 4: 1 point for correct answer (50) or correct *y*-intercept corresponding to incorrect answer(s) given in Parts 1 and 2 due to calculation or copy error.

Mathematics Reference Sheet
Grade 8

	Perimeter	Area	Volume
Square	$4s$	s^2	
Rectangle	$2l + 2w$	lw	
Triangle	$a + b + c$	$\frac{1}{2}bh$	
Equilateral Triangle	$3a$	$\frac{a^2\sqrt{3}}{4}$	
Circle	$2\pi r$	πr^2	
Cube			s^3
Rectangular Prism			lwh

	Surface Area	Volume
Cone	$\pi r\sqrt{r^2 + h^2} + \pi r^2$	$\frac{\pi r^2 h}{3}$
Cylinder	$2\pi rh + 2\pi r^2$	$\pi r^2 h$
Pyramid		$\frac{1}{3}$(Area of base)(h)
Sphere	$4\pi r^2$	$\frac{4\pi r^3}{3}$

Miscellaneous Formulas

Sum of interior angles of a polygon having *n* sides: $(n - 2)180°$

Slope of (non-vertical) line: $m = \frac{y_2 - y_1}{x_2 - x_1}$

Distance between points on a coordinate plane: $d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$

Midpoint: $\left(\frac{x_2 + x_1}{2}, \frac{y_2 + y_1}{2}\right)$

$\pi \approx 3.14$

2 cups = 1 pint

2 pints = 1 quart

4 quarts = 1 gallon

1 mile = 5,280 feet

12 inches = 1 foot

3 feet = 1 yard

1000 grams = 1 kilogram

PART II Released Items (Reading)

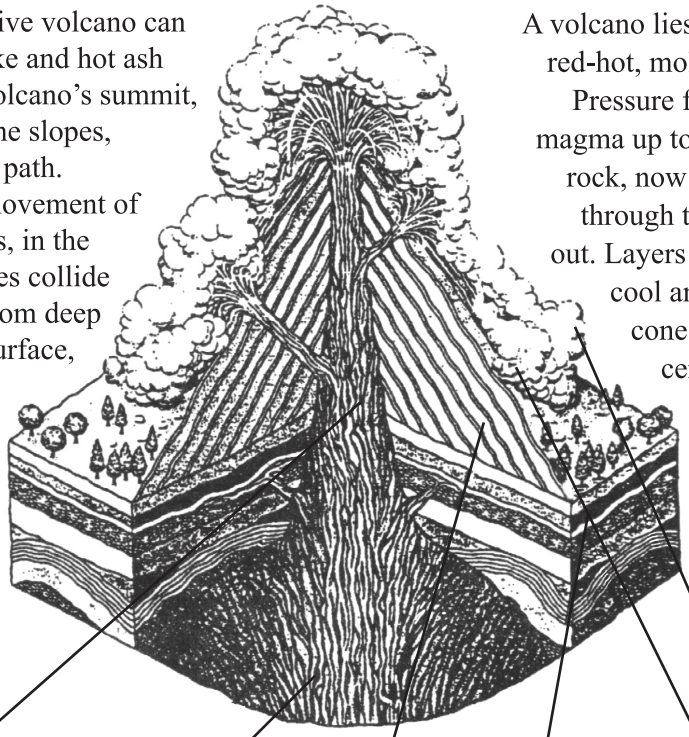
Have you ever wondered what causes a volcano to "blow its top"? Read the following description of how different kinds of volcanoes are formed; then answer multiple-choice questions 1 through 8 and open-response question A.

VOLCANOES

LIVING IN THE SHADOW of a volcano can be a source of constant fear. An active volcano can erupt with little warning: smoke and hot ash billow from the crater at the volcano's summit, and red-hot lava flows down the slopes, setting fire to everything in its path. Volcanoes are caused by the movement of vast slabs of rock, called plates, in the Earth's surface. When the plates collide or spread apart, molten rock from deep underground is forced to the surface, at or near the place where the plates meet. There are about 850 active volcanoes in the world. Most lie in a belt called the Ring of Fire, which surrounds the Pacific Ocean. Volcanoes also occur in the ocean, where they form underwater mountains or islands, such as Hawaii.

VOLCANIC ERUPTIONS

A volcano lies over a deep chamber of red-hot, molten rock, called magma. Pressure from hot gases forces the magma up to the surface. The molten rock, now called lava, melts a hole through the rock above and flows out. Layers of lava and volcanic ash cool and solidify, building up a cone-shaped mountain with a central pipe through which lava flows. Most volcanoes do not erupt continuously. Between eruptions, active volcanoes are called dormant. Extinct volcanoes are those that have stopped erupting.



Magma rises up the main pipe and branch pipes. If thick, slow-flowing lava blocks the main pipes, the volcano may explode.

Cloud of ash and gas pours out from crater.

Magma chamber forms deep underground.

Volcano builds up with layers of ash and solidified lava.

Earth's crust is formed of layers of different kinds of rock. Close to the center of the Earth, the intense heat melts the rock.

Red-hot lava flows down side of volcano.

PART II Released Items (Reading)

LAVA
Molten rock that has escaped to the Earth's surface is called lava. A bubbling lake of molten rock fills the crater of the volcano, and fountains of fiery lava leap high into the air. Glowing streams of lava pour out of the crater and flow down the sides of the volcano like rivers of fire. The lava has a temperature of about 2,000°F (1,100°C), which is hot enough to melt steel.

PUMICE
Lava containing bubbles of gas hardens to form a rock called pumice, which is peppered with tiny holes. The holes make pumice very light: it is the only rock that can float in water.

POMPEII
In A.D. 79, Mount Vesuvius in Italy erupted, burying the Roman city of Pompeii and its inhabitants in a deep layer of hot ash. Archeologists have now uncovered Pompeii, much of which is well preserved. The bodies of victims left hollows in the ash. Vesuvius last erupted in 1944. It could erupt again at any time. One of the greatest of all volcanic disasters occurred when the island of Krakatoa, Indonesia, exploded in 1883.

MAGMA
A volcano's shape depends on the magma it produces. Thick magma produces a steep cone; runny magma results in a flattened, shield-like volcano. Some volcano cones are made only of ash.

GEYSERS
A jet of boiling water that suddenly shoots up from the ground is called a geyser. Hot rock deep below the surface heats water in an underground chamber so that it boils. Steam forces the water out in a jet. When the chamber refills and heats up, the geyser blows again.

1. Most of the world's active volcanoes are located in

* A. the Ring of Fire.
B. Pompeii.
C. Krakatoa, Indonesia.
D. Hawaii.

2. Magma (paragraph 2) refers to

A. molten rock that has escaped to the Earth's surface.
* B. red-hot, molten rock under the Earth's surface.
C. hot gases that force molten rock to the surface.
D. volcanic ash that cools and solidifies after an eruption.

3. A volcano that no longer erupts is

A. dormant.
B. active.
* C. extinct.
D. slow-flowing.

4. Which of the following is **not** true of pumice?

A. It is hardened lava.
* B. It is 2,000 degrees Fahrenheit.
C. It floats in water.
D. It has holes caused by gas bubbles.

5. In A.D. 79, the city of Pompeii was covered with

A. magma.
B. pumice.
* C. ash.
D. water.

6. What determines the shape of a volcano?

* A. the type of magma it produces
B. the size of its cone
C. the amount of lava it produces
D. the frequency of its eruptions

7. In what type of publication might you find this passage?

* A. encyclopedia
B. almanac
C. dictionary
D. atlas

8. What is the **main** purpose of this passage?

A. to persuade
B. to encourage
C. to entertain
* D. to inform

PART II Released Items (Reading)

READING OPEN-RESPONSE ITEM A

A. In your own words, describe what takes place before, during, and after a volcanic eruption. Use information and details from the passage to give a thorough description of this process.

RUBRIC FOR READING OPEN-RESPONSE ITEM A

SCORE	DESCRIPTION
4	The student clearly describes what takes place before, during, and after a volcanic eruption. The response uses specific examples from the text to give a thorough description of the process.
3	The student generally describes what takes place before, during, and after a volcanic eruption. The response uses some examples from the text to give a general description of this process.
2	The student provides a limited description of the process. The response uses limited examples from the text.
1	The response minimally addresses the question.
0	The response is completely incorrect or irrelevant.
B	Blank – No Response. A score of "B" will be reported as a score "NA" (No Attempt – Zero Score).

Sample Response

Prior to a volcanic eruption, plates underground collide or spread apart. This collision forces molten rock toward the surface. Upon reaching the surface, the molten rock—now considered lava—melts a hole in the crust of the earth and flows out along with debris and ashes. These flows can be spewed out high into the air or they can pour down the side of the volcano. As the lava makes its way down, it destroys everything in its path. Eventually, the lava cools. This cooled lava builds up the sides of the volcano, which may one day erupt again.

PART II Released Items (Reading)

Jack is in search of a location to shoot a new movie. The movie takes place in the 1940s and the main point of interest is in a ritzy hotel. Jack happens upon the mysterious Hotel Scofield, which, as luck would have it, has one more room. Read the passage; then answer multiple-choice questions 9 through 16 and open-response question B.

One More Room

by Craig Dominey

After what seemed like hours driving through the misty darkness, the cab finally pulled up to a brightly lit building. "Here we are, sir," said the driver as he pulled beside the doors. Jack got out, and his eyes widened immediately. The Hotel Scofield was a grand, 15-floor brick edifice very much in the style of 1940s luxury hotels. It was a solidly built, narrow building, with a golden awning, red carpet and gas lamps glowing warmly in the foggy night.

2 The doorman smiled at Jack and opened the door into the lush lobby. Sparkling crystal chandeliers hung from the ceiling, red velvet curtains flowed over the windows, and plush chairs and sofas invited weary guests to relax in luxury. Jack smiled as he looked about—he had hit the jackpot. Like the taxicab, the hotel didn't look restored as much as it did looked after. The management seemed to take great pride in transporting its guests to another time. It would work perfectly for the film.

Jack walked up to the front desk—which was made of deep blue marble with polished gold trim—and asked the manager for a room. The slightly plump man smiled warmly and replied, "Well, we tend to be busy this time of year, but we might have one more room." After checking the registry, the manager said, "You're in luck—we have a room available on the top floor. Best view of the city!"

With that, he signaled a bellhop to grab Jack's bags. As Jack followed him toward the elevator, he noticed something strange. The guests in the lobby wore fancy eveningwear—the men in tuxedos, the women in long vintage dresses. There were also soldiers milling about in green, World War II-looking uniforms, grabbing the attention of the giggling single ladies. Champagne was flowing everywhere. Children in their best suits and dresses ran laughing around their parents' legs. All smiled warmly at Jack as he walked by. Have I wandered into a costume party, thought Jack. Or worse—is someone already shooting a movie here?

Jack heard a piano player playing the standard "Auld Lang Syne" in the smoky cocktail lounge. Then he noticed the decorations—a giant Christmas tree glowing brilliantly in the main sitting area, a wreath hanging over the fireplace, greenery with red bows draped over the railings. Nothing unusual—except that it was mid-April.

It was then that Jack froze in his tracks. Across the fireplace was a huge banner that read, "Happy New Year 1946."

At the end of the hall, the golden elevator doors suddenly swung open. Inside was a car full of holiday revelers, all smiling warmly at Jack. One of the men reached out his hand and said, "Come on up, buddy. I think there's room in here for one more."

Jack didn't move—something was definitely odd about this place. Better to stay somewhere where he felt comfortable. "That's alright," he said to the man. "You go on."

The festive piano music suddenly stopped, leaving an eerie silence. Jack heard a rustling sound behind him. He turned and saw that the party crowd had

gathered behind him, still smiling. The man in the elevator reached out again for Jack and said, "You don't understand. We have room in here for one more."

The crowd suddenly closed in behind Jack. Jack was not an easily scared man, but he was impulsive. He whirled around and charged back through the crowd. Two soldiers grabbed his arms and dragged him back to the elevator. The room began to spin around them, and Jack could swear he saw the Christmas decorations starting to melt. The walls morphed into a sooty black color, and the stinging smell of smoke was everywhere.

"Come on friend," said the smiling man in the elevator. "There's no need to fight—I told you, there's room for one more."

Horrifying screams filled the room, but the revelers stood silent, the same silly grins plastered on their faces. The room heated up rapidly to an unbearable temperature. Black smoke now filled the air, and Jack's blood ran cold as he realized that the place was on fire—but no one wanted to leave.

With every ounce of strength he had, Jack wriggled free of the soldiers and charged back through the crowd, knocking over anyone who stood in his way. Hands grabbed desperately at his clothes through the blinding smoke, the screams deafening.

Suddenly, the ground dropped beneath Jack's feet. He tumbled down the lobby stairs, his head smashing against the marble floor. The room spun wildly around him, then went black.

Moments later, Jack opened his eyes. He found himself lying on a dirty floor littered with garbage, chipped marble and broken glass. He sat up dizzily, wiped the trickle of blood from his forehead and gazed about the room. He was shocked to find that the ornate hotel lobby had fallen into ruin long ago. The windows were broken out, and the rooms were black and gutted. Vagrants had spray-painted graffiti on the walls.

"Hey!" shouted a gruff voice behind him. Jack whirled around to find a police officer standing in the doorway, his hand on his gun. "What are you doing in here?"

"I . . . I don't know," was all Jack could say.

The policeman studied Jack for a minute, then helped him to his feet. "Did somebody attack you?" he asked.

"No, sir," answered Jack. "I just checked in here a few hours ago and . . . ."

". . . What do you mean 'checked in'?" asked the policeman. "This hotel ain't been open since the great fire years ago."

Jack suddenly turned pale and asked, "What fire?"

"Just the worst hotel fire in U.S. history," said the policeman. "Didn't you see the historic marker outside? Over a hundred people died in here. They said this place was fireproof—you know, kinda like they said the Titanic was unsinkable. But they were obviously wrong."

Jack looked about the room in disbelief as the policeman continued: "Most of the folks who survived were on the lower floors. Our fire department didn't have ladders tall enough back then to reach the top floors. It was a horrible sight."

"When did it happen?" asked Jack, almost afraid of the answer.

The policeman scratched his head and said, "I believe it was New Year's Eve, 1946."

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9. In paragraph 10, what does the phrase "the walls morphed" mean?

A. They moved around all over the place.

B. They were remodeled, and are not original.

C. They started to close in, almost crushing Jack.

* D. They began to change into something different.

10. In paragraph 2, why did Jack think he had "hit the jackpot"?

A. He won the lottery.

* B. He found the location for his film.

C. He could win money gambling in the hotel.

D. He saw many hotel guests he could hire as extras.

11. Before Jack arrived at the hotel, he researched costuming for his movie. Which of the following sources would have been the **most** helpful to him in achieving an accurate depiction of the period?

A. *The Fashion Industry*

B. *Garment Construction*

C. *Costumes and Clothing* Web site

* D. *American Costume: 1940–1950* Web site

12. What evidence leads Jack to think that someone else might be filming a movie in the hotel?

A. Screams filled the room.

B. The ground dropped beneath his feet.

* C. Soldiers wore World War II uniforms.

D. Hands grabbed desperately at his clothing.

13. One of the themes in "One More Room" is that choices we make in life have lasting consequences. Which of Jack's actions **best** illustrates this theme?

A. Jack follows the bellhop to the elevator.

B. Jack gets out of the cab and enters the hotel.

C. Jack allows a policeman to help him to his feet.

* D. Jack refuses to go to the top floor in the elevator.

14. What kind of feeling does Craig Dominey attempt to induce in the reader?

* A. a haunting, uneasy feeling

B. a frustrated, annoyed feeling

C. an optimistic, peaceful feeling

D. an apathetic, indifferent feeling

15. What does the author **most likely** want the reader to think happened to Jack at the Hotel Scofield?

A. He was a guest the night the hotel caught on fire.

B. He never actually drove up or entered the hotel lobby.

C. He was having a flashback of the last time he was there.

* D. He time-traveled back to the night the hotel burned down.

16. How does Jack feel at the end of the passage?

* A. unable to comprehend what he has experienced

B. satisfied that the Hotel Scofield mystery is solved

C. determined to go back into the hotel to find the party

D. lucky that he refused to enter the elevator with the crowd

PART II Released Items (Reading)

READING OPEN-RESPONSE ITEM B

B. Explain why the author's use of time is an important technique in this passage, and identify three different things related to time that Jack observed as peculiar.

RUBRIC FOR READING OPEN-RESPONSE ITEM B

SCORE	DESCRIPTION
4	The response demonstrates a clear understanding of the importance of time to the story and identifies three different things related to time that Jack observed as peculiar, using specific examples from the story.
3	The response demonstrates a clear understanding of the importance of time to the story and identifies two things related to time that Jack observed as peculiar, using specific examples from the story. **OR** The response demonstrates a partial understanding of the importance of time to the story and identifies three different things related to time that Jack observed as peculiar, using specific examples from the story.
2	The response demonstrates a clear understanding of the importance of time to the story. **OR** The response demonstrates a partial understanding of the importance of time to the story and identifies at least one thing related to time that Jack observed as peculiar, using a specific example from the story. **OR** The response identifies at least two different things related to time that Jack observed as peculiar, using specific examples from the story.
1	The response demonstrates a partial understanding of the importance of time to the story. **OR** The response identifies one thing related to time that Jack observed as peculiar, using a specific example from the story.
0	The response is completely incorrect or irrelevant.
B	Blank – No Response. A score of "B" will be reported as a score "NA" (No Attempt – Zero Score).

Sample Response

The author gives the reader the impression that Jack actually traveled back in time, into the past, and experienced being in the Hotel Scofield the night it burned down in 1946 with more than one hundred people in it. Jack observed three different things related to time that seemed peculiar. He saw a banner across the fireplace that read, "Happy New Year 1946" in mid-April. When he awoke, he found that the ornate lobby had fallen into ruins. The policeman told him that more than one hundred people died in the Scofield Hotel the night it burned down on New Year's Eve, 1946.

PART II Released Items (Reading)

Fish tastes best when eaten fresh from a lake or river. Find out how to prepare it several ways with a minimum of effort and a maximum of taste; then answer multiple-choice questions 17 through 24 and open-response question C.

Shore Lunches

by Keith Sutton

You may disagree, but in my mind, fish cooked beside the lake or river from which it was just caught tastes better than any other. A trout which minutes earlier was pulled from a cold, mountain stream can be skewered on a willow stick and broiled over hot coals to create a masterpiece of culinary delight. Fresh catfish fillets blackened in a cast-iron skillet take on special flavor when cooked outdoors. Panfish and bass never taste better than when cooked over a hickory fire and eaten while listening to the music of rippling water.

Gather a few simple ingredients before leaving home, toss some cookware in the boat with your fishing gear, and all you need is fresh-caught fish to create a memorable shore lunch. When lunch is over, clean your cook site so it remains unspoiled for those visiting later. Build campfires only where permitted, then properly extinguish your fire. Better yet, cook on a small propane stove so no evidence of your visit remains. Carry out all garbage, including fish scraps and uneaten food, for proper disposal. When you leave your lunchtime retreat, leave it looking like you were never there.

Shore Lunch Tips

Cooking in aluminum foil is the best way to avoid after-lunch cleanup. Your meal can be cooked and served in a foil packet, then the foil is stowed away in a garbage bag for disposal after your outing.

Reduce outdoor preparation time by doing a little work prior to your trip. Chop up the vegetables, prepare spice mixes and condiments, then store everything on ice in air-tight containers. Pack all

items—aluminum foil, a cooking grate, etc.—needed to prepare the meal. Then once you reach your lunch-time stopover point, cooking chores are kept to a minimum.

Cooking a shore lunch can be as simple as turning skewered fish over hot coals. Drive two stout forked branches into the ground on either side of the fire. The forks of each branch should be about 18 to 20 inches above the fire. Thread one or several fish, depending on size, on a slender green willow stick that has been sharpened on one end. Season with salt and pepper. Lay each fish stick across the forks of the upright sticks. After the fish begins to cook, baste frequently with melted butter. Broil, turning occasionally, until the fish flakes easily.

Recipes

Blackened Catfish

Ten (6- to 10-ounce) catfish fillets
1 pound (4 sticks) unsalted butter, melted and kept warm

Blackening spice:

2 tablespoons paprika
2 tablespoons salt
2 teaspoons onion powder
2 teaspoons garlic powder
2 teaspoons cayenne pepper
1½ teaspoons white pepper
1½ teaspoons black pepper
1 teaspoon dried thyme
1 teaspoon dried oregano

Before leaving home, use a fork to thoroughly combine blackening spice ingredients in a small bowl. Store in an airtight container until ready to use.

Heat a large cast-iron skillet until it is almost white hot. Dip each piece of fish in melted butter, then sprinkle some blackening spice mix evenly on each side. Immediately place the fish in the hot skillet, cooking one piece at a time. Pour a teaspoon of melted butter atop the fish. (Be careful; the butter may flame up.) Cook about two minutes, turn, and pour another teaspoon of butter on top. Cook two minutes more. When the fish is done, it should be flaky, white and still very moist inside. Serve each piece while piping hot with more hot melted butter on the side for dipping.

Foil-Broiled Bream

1 cup creamed butter
1 tablespoon minced chives
1 tablespoon minced parsley
1 teaspoon oregano
6 pan-dressed[1] bream, about ½ pound each
Salt, black pepper
1 lemon

Before leaving on your fishing trip, make an herb butter by blending the chives, parsley, oregano and creamed butter. Pack in a small waterproof container, and store on ice. Also carry an 18-inch square of aluminum foil for each bream.

At meal time, spread each piece of foil rather thickly with the herb-butter mixture, leaving two inches of unbuttered border all around. Put a fish on each piece of foil, salt and pepper to taste, and squeeze on a little lemon juice. Then fold the foil around the fish, and double fold the edges to seal in the juices. Place a cooking grate six to eight inches above the fire, and grill 25 to 30 minutes, turning once. Serve in the foil.

[1] pan-dressed: fish that is cleaned and prepared for cooking

17. What is the **main** purpose of this passage?

A. to persuade the reader to learn the techniques of fishing

B. to persuade the reader that he or she will enjoy camping in the wilderness

* C. to inform the reader of the techniques of cooking freshly caught fish

D. to inform the reader of the importance of preparing food safely outdoors

18. According to the passage, why is a propane stove the **best** source of heat for cooking fish?

* A. It leaves no ashes and the campsite is unspoiled.

B. It heats up quickly and makes a white-hot flame.

C. It has its own grate on which the fish can be cooked.

D. It requires no wood or charcoal to be carried to the cooking site.

19. How does the inside of the catfish look when it is properly cooked?

A. It is dry.

* B. It is flaky.

C. It turns black.

D. It shreds into tiny pieces.

20. According to the passage, what is the advantage of cooking in aluminum foil?

A. Food can be put directly on the fire.

B. Food is juicier than when cooked in a pan.

* C. Cooking in foil avoids after-lunch cleanup because there are no dishes.

D. Cooking in foil allows food to be saved in the wrapping that was used to cook it.

21. When cooking fish on branches over hot coals, how high above the coals must the fish be placed?

A. 12 to 14 inches

B. 14 to 16 inches

C. 16 to 18 inches

* D. 18 to 20 inches

22. If you follow the directions for foil-broiled bream, what is the next step **after** squeezing lemon juice on the fish?

A. Add salt and pepper.

* B. Fold the foil around the fish.

C. Spread the herb butter around the fish.

D. Grill the fish for 25–30 minutes, turning once.

23. What is the correct sequence for cooking a fish over hot coals?

I. Sprinkle blackening on each side of the fish.

II. Cook the fish for two minutes on each side.

III. Heat a cast-iron skillet until it is almost white hot.

IV. Dip each piece of fish in melted butter.

A. I, II, III, IV

B. II, III, IV, I

* C. III, IV, I, II

D. IV, I, II, III

24. Why do the instructions for blackened catfish caution the reader when pouring butter on top of the cooking fish?

* A. The butter may catch fire in the skillet.

B. The fish may cook too quickly and burn.

C. The blackening spices may drip off the fish.

D. The fish may require an extra five minutes to cook.

PART II Released Items (Reading)

READING OPEN-RESPONSE ITEM C

C. Describe the preparation of cooking ingredients and supplies **before** going on a fishing trip, and explain two advantages of preparing ahead of time.

RUBRIC FOR READING OPEN-RESPONSE ITEM C

SCORE	DESCRIPTION
4	The response provides a thorough description of ahead-of-time preparation of cooking ingredients by including specific examples from the selection and discusses two advantages of preparing ahead of time.
3	The response provides a partial description of ahead-of-time preparation of cooking ingredients by including specific examples from the selection and discusses two advantages of preparing ahead of time. **OR** The response provides a thorough description of ahead-of-time preparation of cooking ingredients by including specific examples from the selection and discusses one advantage of preparing ahead of time.
2	The response provides a thorough description of ahead-of-time preparation of cooking ingredients by including specific examples from the selection. **OR** The response provides a partial description of ahead-of-time preparation of cooking ingredients by including specific examples and discusses one advantage of preparing ahead of time. **OR** The response discusses two advantages of preparing ahead of time.
1	The response provides a partial description of ahead-of-time preparation of cooking ingredients by including specific examples from the selection. **OR** The response provides one advantage of preparing ahead of time.
0	The response is completely incorrect or irrelevant.
B	Blank – No Response. A score of "B" will be reported as a score "NA" (No Attempt – Zero Score).

Sample Response

Before going on a fishing trip, the fisherman gathers the cooking ingredients together. He chops up the vegetables, prepares spice mixes and condiments, and stores everything on ice in air-tight containers. Some advantages include less outdoor preparation time since ingredients are already cut up and measured, [inferred] more time is available for fishing and enjoying the outdoors, clean up is easier, and fish will be fresher because less time is spent on the entire cooking process.

Acknowledgments

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PART II Released Items (Writing)

TOPIC #1

Your social studies class has been discussing problems kids your age will face when you become adults. Your teacher has asked you to write an essay about the biggest problem your generation will face when you become adults.

Before you begin to write, think about a problem that your generation will face. What is the biggest problem and what can you do to handle it?

Now write an essay about the biggest problem your generation will face when you become adults. Be sure to tell what it is and explain how your generation can deal with it. Give enough specific detail so that your teacher will understand.

TOPIC #2

Your English teacher has asked you to write an essay about a person you admire.

Before you begin to write, think about a person you admire. Many people are admired because of their careers, their parenting skills, or their community involvement. Whom do you admire, and why do you admire that person?

Now write an essay about the person you most admire. Give reasons why you admire this person. Support your reasons with specific examples. Be sure to present your ideas clearly so that your teacher will understand.

WRITER'S CHECKLIST

1. Look at the ideas in your response.
   - — Have you focused on one main idea?
   - — Have you used enough detail to explain yourself?
   - — Have you put your thoughts in order?
   - — Can others understand what you are saying?
2. Think about what you want others to know and feel after reading your paper.
   - — Will others understand how you think or feel about an idea?
   - — Will others feel angry, sad, happy, surprised, or some other way about your response? (Hint: Make your reader feel like you do about your paper's subject.)
   - — Do you have sentences of different lengths? (Hint: Be sure you have a variety of sentence lengths.)
   - — Are your sentences alike? (Hint: Use different kinds of sentences.)
3. Look at the words you have used.
   - — Have you described things, places, and people the way they are? (Hint: Use enough detail.)
   - — Are you the same person all the way through your paper? (Hint: Check your verbs and pronouns.)
   - — Have you used the right words in the right places?
4. Look at your handwriting.
   - — Can others read your handwriting with no trouble?

PART II Released Items (Writing)

Domain Scoring Rubric

Content (C)

The Content domain includes the focusing, structuring, and elaborating that a writer does to construct an effective message for a reader. It is the creation of a product, the building of a writing intended to be read. The writer crafts his/her message for the reader by focusing on a central idea, providing elaboration of the central idea, and delivering the central idea and its elaboration in an organized text. Features are:

- Central idea
- Elaboration
- Unity
- Organization

Style (S)

The Style domain comprises those features that show the writer purposefully shaping and controlling language to affect readers. This domain focuses on the vividness, specificity, and rhythm of the piece and the writer's attitude and presence. Features are:

- Selected vocabulary
- Selected information
- Sentence variety
- Tone
- Voice

Sentence Formation (F)

The Sentence Formation domain reflects the writer's ability to form competent, appropriately mature sentences to express his/her thoughts. Features are:

- Completeness
- Absence of fused sentences
- Expansion through standard coordination and modifiers
- Embedding through standard subordination and modifiers
- Standard word order

Usage (U)

The Usage domain comprises the writer's use of word-level features that cause written language to be acceptable and effective for standard discourse. Features are:

- Standard inflections
- Agreement
- Word meaning
- Conventions

Mechanics (M)

The Mechanics domain includes the system of symbols and cuing devices a writer uses to help readers make meaning. Features are:

- Capitalization
- Punctuation
- Formatting
- Spelling

Scoring Scale

Each domain is scored independently using the following scale:

4 = The writer demonstrates consistent, though not necessarily perfect, control* of almost all of the domain's features.

3 = The writer demonstrates reasonable, but not consistent, control* of most of the domain's features, indicating some weakness in the domain.

2 = The writer demonstrates enough inconsistent control* of several features to indicate significant weakness in the domain.

1 = The writer demonstrates little or no control* of most of the domain's features.

The application of the scale, using actual student writing, is done with the assistance of a committee of Arkansas teachers, language arts supervisors, and representatives of the Arkansas Department of Education.

* Control: The ability to use a given feature of written language effectively at appropriate grade level. A paper receives a higher score to the extent that it demonstrates control of the features in each domain.

PART III Curriculum Frameworks

The Arkansas Mathematics Framework*

Strands	Content Standards	Student Learning Expectations
1. NUMBER SENSE, PROPERTIES AND OPERATIONS (NPO)	1. The student will communicate an understanding of the properties of numbers and operations (add, subtract, multiply, divide).	1. Identify numerical patterns (e.g., prime numbers, squares, exponents) and verify results (e.g., by continuing the pattern). 2. Expand number sense through the use of mental computation, calculators/technology, and written and verbal communication (e.g., powers of ten, factoring, greatest common factors, least common multiples).
	2. The student will demonstrate and apply knowledge of numbers and numerical relationships to real-world situations.	3. Determine the most appropriate notational representation of a number for the given problem (e.g., fractions vs. decimals, scientific notation). 4. Explain the relationship of numbers in one- and two-dimensional graphs (e.g., number lines and coordinate graphs), with and without appropriate technology, such as graphing calculators.
2. GEOMETRY AND SPATIAL SENSE (GS)	1. The student will demonstrate, construct, communicate, and apply the properties of geometric shapes and spatial sense to connect geometry with problem-solving situations.	1. Identify, draw, describe, classify, and compare geometric figures and their relationships in one, two, and three dimensions (from points to polyhedra with physical materials). 2. Apply geometric properties and formulas (e.g., triangles have 180 degrees, opposite sides of rectangles are equal, Pythagorean theorem) to solve problems with and without appropriate technologies. 3. Make predictions based on transformations of geometric figures in problem-solving situations (e.g., compare two pictures and determine what changes were made – i.e., flip, slide, rotation). 4. Establish and apply geometric relationships through informal reasoning (e.g., estimate angle measures).
3. MEASUREMENT (M)	1. The student will use measurement attributes (length, weight, mass, area, volume, time, money, temperature, scale, and angle) to describe and compare mathematical and real-world objects.	1. Use estimation to check the reasonableness of measurements obtained from use of various instruments (including angle measures). 2. Estimate, calculate, and compare the one-, two-, and three-dimensional features of objects in metric, customary, and non-standard units of measure. 3. Convert from one measurement to another within the same system (customary or metric).
	2. The student will demonstrate the appropriate use of measuring instruments.	1. Select appropriate units and tools (metric, customary, and non-standard) to measure to the required degree of accuracy.
	3. The student will apply measurement concepts to solve problems inside and outside the field of mathematics.	1. Develop and use procedures to solve measurement problems using one, two, and three dimensions. 3. Construct scale drawings (using various tools) and/or build 3-D models to represent real-world problems and situations.

*The Content Standards and Student Learning Expectations listed are those that specifically relate to the released test items in this booklet.

The Arkansas Mathematics Framework* (continued)

Strands	Content Standards	Student Learning Expectations
4. DATA ANALYSIS, STATISTICS AND PROBABILITY (DSP)	1. The student will perform the steps that comprise data analysis, from gathering information to communicating results.	1. Actively and systematically collect, organize, and describe data using technology when appropriate. 2. Construct, read, and interpret tables, charts, and graphs (including stem-and-leaf, histogram, bar graph, pie graph, box and whiskers, line graph, scatter plots) with and without technology. 3. Based on analysis of central tendencies (mean, median, mode, range), make predictions and inferences (e.g., interpolate from within graphs and extrapolate by extending graphs) from the data set with and without technology.
	2. The student will use probability models to perform experiments and simulations.	2. Make predictions based on experimental and theoretical probabilities.
	3. The student will apply probability and statistical concepts in problem-solving and decision-making situations.	2. Make inferences and convincing arguments based on statistics with and without technology. 3. Model the use of probability and statistical methods in decision making using technology presentation materials (e.g., LCD, graphing calculators, spreadsheets, etc.).
5. PATTERNS, ALGEBRA AND FUNCTIONS (PAF)	1. The student will use the language/symbols of algebra to represent patterns and functions.	1. Represent arithmetic as algebra (change 25 = __ + 13 to 25 = m + 13). 2. Through the use of manipulatives and computer technology, develop the concepts of variables, expressions, and equations (algebra tiles, two-color counters, graphing calculators, balance scale model, etc.). 3. Analyze and represent (through calculator use) situations and number patterns with tables, graphs, and equations (e.g., identifying linear, exponential, and quadratic patterns).
	2. The student will use algebraic concepts to model, to solve, and to test solutions of mathematical and real-world problems.	1. Conduct informal investigations (with technology) for analyzing, representing, interpreting, and generalizing functional relationships (e.g., distance and time) to develop explanations or predictions about outcomes of actual situations. 2. Identify variables and relationships and translate them into mathematical statements or other mathematics representations to construct a model (e.g., converting from graphs, tables, words, and expressions). 3. Write and solve equations and inequalities (using manipulatives and technology). 5. Use a calculator to display, to determine, and to make inferences from linear relationships in slope-intercept form.

*The Content Standards and Student Learning Expectations listed are those that specifically relate to the released test items in this booklet.

PART III Curriculum Frameworks

The Arkansas Language Arts Framework—Reading: Strand 2*

Content Standards	Student Learning Expectations
1. Students will comprehend, evaluate, and respond to works of literature and other kinds of writing, which reflect their own cultures and developing viewpoints, as well as those of others.	2. Analyze related and implied main ideas and supportive details. 3. Analyze text using patterns of organization, such as story elements, cause and effect, comparison and contrast. 4. Analyze literature for purposes, ideas, and style of author. 6. Read and follow directions. 7. Apply syntactic, semantic, and phonetic cues to decode and construct meaning from print. 10. Compare literary elements (e.g., setting, character traits). 12. Establish purpose for reading. 15. Employ comprehension strategies, such as prediction, skimming, and sequencing. 16. Evaluate and react critically to what has been read.
2. Students will demonstrate a willingness to use reading to continue to learn, to communicate, and to solve problems independently.	6. Use library and reference skills.

*The Content Standards and Student Learning Expectations listed are those that specifically relate to the released test items in this booklet.

PART IV Item Correlation with Curriculum Frameworks

Released Items for Mathematics*

Strands	Content Standards
1. NUMBER SENSE, PROPERTIES AND OPERATIONS (NPO)	1. The student will communicate an understanding of the properties of numbers and operations (add, subtract, multiply, divide). 2. The student will demonstrate and apply knowledge of numbers and numerical relationships to real-world situations.
2. GEOMETRY AND SPATIAL SENSE (GS)	1. The student will demonstrate, construct, communicate, and apply the properties of geometric shapes and spatial sense to connect geometry with problem-solving situations.
3. MEASUREMENT (M)	1. The student will use measurement attributes (length, weight, mass, area, volume, time, money, temperature, scale, and angle) to describe and compare mathematical and real-world objects. 2. The student will demonstrate the appropriate use of measuring instruments. 3. The student will apply measurement concepts to solve problems inside and outside the field of mathematics.
4. DATA ANALYSIS, STATISTICS AND PROBABILITY (DSP)	1. The student will perform the steps that comprise data analysis, from gathering information to communicating results. 2. The student will use probability models to perform experiments and simulations. 3. The student will apply probability and statistical concepts in problem-solving and decision-making situations.
5. PATTERNS, ALGEBRA AND FUNCTIONS (PAF)	1. The student will use the language/symbols of algebra to represent patterns and functions. 2. The student will use algebraic concepts to model, to solve, and to test solutions of mathematical and real-world problems.

Item	Strand	Content Standard	Student Learning Expectation
1	M	1	1
2	DSP	1	1
3	PAF	1	1
4	M	1	1
5	GS	1	1
6	DSP	3	3
7	NPO	2	3
8	GS	1	1
9	NPO	1	1
10	M	1	3
11	NPO	1	2
12	DSP	2	2
13	GS	1	2
14	M	1	2
15	DSP	3	2
16	NPO	2	3
17	PAF	2	2
18	GS	1	1
19	PAF	2	2
20	M	3	1
21	DSP	1	3
22	GS	1	4
23	M	1	2

Item	Strand	Content Standard	Student Learning Expectation
24	GS	1	2
25	NPO	2	3
26	M	2	1
27	PAF	2	3
28	NPO	2	4
29	PAF	1	3
30	DSP	1	2
31	DSP	1	2
32	PAF	2	3
33	NPO	1	2
34	PAF	2	1
35	M	3	3
36	GS	1	1
37	NPO	1	1
38	DSP	2	2
39	PAF	1	2
40	GS	1	3
A	NPO	1	2
B	GS	1	1
C	M	1	1
D	DSP	1	1
E	PAF	2	5

*Only the predominant Strand, Content Standard, and Student Learning Expectation is listed for the Mathematics and Reading items.

PART IV Item Correlation with Curriculum Frameworks

Released Items for Reading*

Content Standards for Strand 2
1. Students will comprehend, evaluate, and respond to works of literature and other kinds of writing, which reflect their own cultures and developing viewpoints, as well as those of others.
2. Students will demonstrate a willingness to use reading to continue to learn, to communicate, and to solve problems independently.

Item	Content Standard for Strand 2	Student Learning Expectation	Passage Type
1	1	2	Content
2	1	2	Content
3	1	2	Content
4	1	2	Content
5	1	3	Content
6	1	3	Content
7	1	4	Content
8	1	12	Content
A	1	15	Content
9	1	7	Literary
10	1	2	Literary
11	2	6	Literary
12	1	3	Literary
13	1	16	Literary
14	1	4	Literary
15	1	15	Literary
16	1	10	Literary
B	1	4	Literary

Item	Content Standard for Strand 2	Student Learning Expectation	Passage Type
17	1	4	Practical
18	1	2	Practical
19	1	6	Practical
20	1	2	Practical
21	1	2	Practical
22	1	6	Practical
23	1	15	Practical
24	1	6	Practical
C	1	2	Practical

*Only the predominant Strand, Content Standard, and Student Learning Expectation is listed for the Mathematics and Reading items.

ACTAAP

Arkansas Comprehensive Testing, Assessment and Accountability Program

DEVELOPED FOR THE ARKANSAS DEPARTMENT OF EDUCATION, LITTLE ROCK, AR 72201

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