

PreCalculus

More Slope Practice

Using the following function $g(x) = 2x^2 - 5x + 11$ answer the following, showing your work and include graphical representations of what you are doing.

Evaluate:

Determine the value of $g(2x^2 - 5x + 11)$.

Slope at a Point:

Calculate, using the slope formula (rise/run), the value of the slope around $x=17$. State the value of h used, and compare to the value reported by the calculator.

Tangent Line at a Point:

Calculate the name of the line that is Tangent to $g(x)$ at $x=17$. Verify with the calculator.

General Equation of Slopes:

Use the formula $m = \frac{f(x+h) - f(x)}{x+h-x}$ when h goes to zero to determine the equation of slopes for $g(x)$. Verify the slope at $x=17$ using this equation.

Calculator Version:

Using nDeriv(on the calculator, get the graph of the equation of slopes. Use points from this curve to determine the name of the line. Compare it to the answer you got using the slope formula above.