6-5 Discriminant

Name _____

Use the discriminant of each equation to determine how many solutions exist.

1. $3x^2 – x – 8 = 0$ Number of solutions = _____

2. $2x^2 – 4x + 2 = 0$ Number of solutions = _____

3. $x^2 – 3x – 10 = 0$ Number of solutions = _____

4. $4x^2 + x + 10 = 0$ Number of solutions = _____

5. Consider the equation $x^2 – 6x + 13 = 0$. No real number solutions exist.
Thus, the equation $f(x) = x^2 – 6x + 13$ does not cross the x-axis – important concept.
Determine the y-intercept and then calculate the derivative to find the vertex of the parabola.
Now determine a third point on the parabola without plugging values into the equation.

y-intercept = _____ vertex = _____ 3rd point = _____

6. Consider the equation $x^2 + 2x + 2 = 0$. No real number solutions exist.
Thus, the equation $f(x) = x^2 + 2x + 2$ does not cross the x-axis – important concept.
Determine the y-intercept and then calculate the derivative to find the vertex of the parabola.
Now determine a third point on the parabola without plugging values into the equation.

y-intercept = _____ vertex = _____ 3rd point = _____