

Assignment #2-2

Secondary 3 Honors

Complete this assignment on a separate sheet of paper.

Write a quadratic equation that satisfies the following conditions:

1. $V(3,5)$ Point $(5,-3)$
2. $V(-2,-9)$ x-int $(1,0)$
3. $V(-4,3)$ y-int $(0,11)$
4. one x-int at $(2,0)$ & y-int $(0,-12)$

Use a graphing calculator to determine the quadratic equation for each set of three points.

5. $(-4,12), (-2,-14), (2,6)$
6. $(-2,3), (2,-9), (5,-60)$
7. $(0,3), (-5,-2.4), (15,-7.8)$

Use the following for questions 8-10

Victoria competes in a discus throwing competition. She needs to throw her discus at least 200 feet to win the event. The discus has an initial height of 5 feet when she releases it. The discus reaches a height of 25 feet after traveling 75 feet and a height of 20 feet after traveling 150 feet.

8. Write a quadratic function to model the height of the discus as a function of the distance traveled.
9. Does Victoria win the competition? Explain your reasoning.
10. What was the maximum height of the discus?
11. Give the equation and slope of the vertical line that passes through $(-2,8)$.
12. Give the equation of a quadratic with roots -5 and 2 with a leading coefficient of 3 .
13. Solve for x and give an exact solution: $3(x + 2)^2 = 30$

If $f(x) = x^2 - 5$ and $g(x) = x + 3$, find the following:

14. $f(-4)$
15. $(f \circ g)(x)$
16. $(g \circ f)(3)$
17. $f(g(-2))$
18. Find the relative max, relative min, increasing and decreasing intervals of $f(x) = -2x^3 + 5x^2 - 1$.
19. Find the equation of a line perpendicular to $2x + 7y = 10$ and through the point $(-3,6)$.
20. A farmer has 250 feet of fencing and wants to enclose a corral for his goats. He is considering several different configurations for the corral (see the figures below). Label the figures in terms of x and write equations for the area of the corrals. Use your calculator to determine which corral would have the maximum enclosed area.

