

Math 080
Quadratic Functions Worksheet

Solve.

1. $(4y - 1)^2 = 5$

2. $3x^2 - 8x + 4 = 0$

3. $y^2 + 9y + 18 = 0$

4. $3x^2 - 4x = -5$

5. $A = 4\pi(R^2 - r^2)$ for r

6. The grade point average, G , at Smith College can be modeled by a function of the number of hours the student studies per week, h , as $G = 0.01h^2 + 0.2h + 1.2$, where n is between 0 and 8 hours.

- a. What is the GPA for a student that studies 0 hours per week?
- b. What is the GPA for a student that studies 4 hours per week?
- c. How many hours should a student study to get a GPA of 3.7?

7. A family on vacation went 70 miles in heavy traffic. They then reached the highway where they went 260 miles at 30 mph faster than in heavy traffic. If the trip took 8 hours, determine her average speed in heavy traffic.

8. After a small oil spill, two ships are sent to clean up the spill. The first ship can clean the spill 3 hours less time than it takes the second ship. If they both work together, it will take 7 hours to clean the spill. How long will it take the first ship working alone?

9. $2\sqrt{x} = 4x - 12$

10. $r^{2/5} - 5r^{1/5} + 6 = 0$

11. $(z^2 - 6z)^2 - 5(z^2 - 6z) - 24 = 0$

Determine whether the parabola open up or down, find x and y intercepts and vertex, draw the graph.

12. $f(x) = -2x^2 + 4x + 6$

13. $g(x) = -2(x + 3)^2 - 2$

Solve and give answer in interval notation and graph.

14. $x^2 - 5x - 6 < 0$

$$15. \frac{4x - 8}{x + 7} \geq 0$$

$$16. \frac{(x + 3)(x - 5)}{x + 2} \leq 0$$