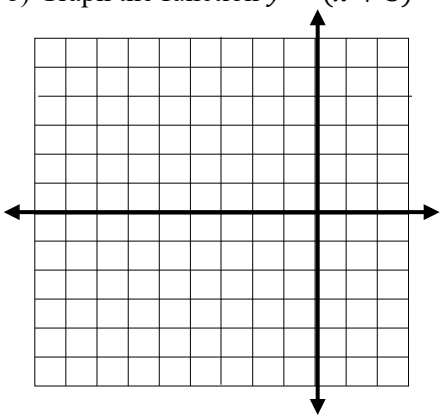
Math 2 Unit 10 Worksheet 5
Solving Quadratic Equations using Square Roots

Name:_____
Date:_____ **Per:**_____

1. a) Solve the equation for x
$0 = (x + 3)^2 - 4$

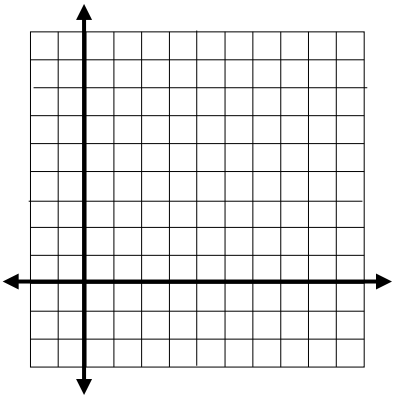
b) Graph the function $y = (x + 3)^2 - 4$



c) Where can you see the answers from part a in your graph?

2. a) Solve equation for x
$0 = (x - 5)^2 + 4$

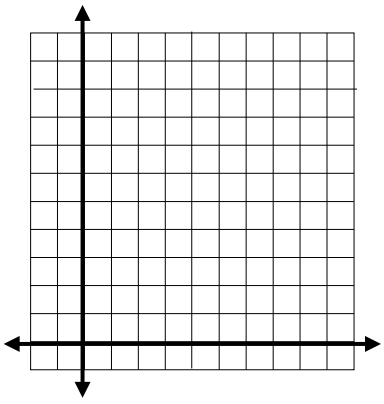
b) Graph the function $y = (x - 5)^2 + 4$



c) Where can you see the answers from part a in your graph?

3. a) Solve the equation for x
$0 = -2(x - 3)^2 + 8$

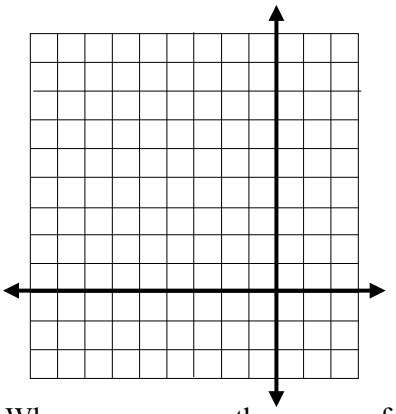
b) Graph the function $y = -2(x - 3)^2 + 8$



c) Where can you see the answers from part a in your graph?

4. a) Solve the equation for x
$0 = 5(x + 4)^2$

b) Graph the function $y = 5(x + 4)^2$



c) Where can you see the answers from part a in your graph?

5. Look carefully at the equations in part a and the function in part b for problems 1-4. Why does plugging in zero for y and solving for x find the x value of the point where the function crosses the x-axis?

[6-17] Solve the following equations. State the number of x-intercepts for the related quadratic function.

6. $4x^2 - 100 = 0$

7. $0 = 3x^2 - 27$

8. $5x^2 - 7 = 0$

9. $0 = 11x^2 - 6$

10. $\frac{2}{3}x^2 - 5 = 0$

11. $0 = 5x^2 + 100$

12. $(x - 3)^2 - 10 = 0$

13. $0 = (x - 7)^2 - 21$

14. $(x - 15)^2 = 0$

15. $0 = (x + 1)^2 + 12$

16. $0 = 2(x - 7)^2 - 20$

17. $-4(x + 7)^2 + 20 = 0$

18. A ball is thrown vertically upward with an initial speed of 96 ft/sec. Its height after t seconds is given by $h = -16(t - 3)^2 + 144$. After how many seconds will the ball hit the ground?

19. A basketball is thrown upward with an initial speed of 64 ft/sec. Its height after t seconds is given by $h = -16(t - 2)^2 + 64$. After how many seconds will the ball hit the ground?

20. The profit, P, made selling phones at price, x, can be modeled by $P = -\frac{1}{5}(x - 400)^2 + 18000$. What prices could the company sell each phone for if the profit is exactly zero dollars (break-even point)?