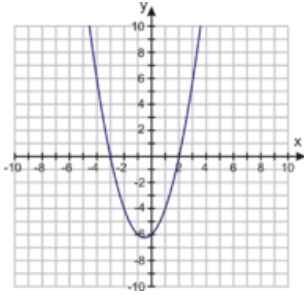


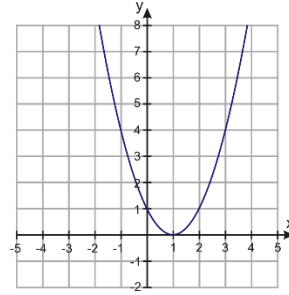
Name: _____ Date: _____

Unit 3 Review #2Solve each quadratic **Graphically**.

1.



2.

Solve each quadratic equation by **Factoring**:

3. $3x^2 - 17x = 6$

4. $2x^2 + 8x - 10 = 0$

5. $20x^2 - 125 = 0$

Solve each quadratic equation by **Square Roots**:

6. $\frac{2}{5}x^2 - 63 = 13$

7. $(x+2)^2 - 40 = 9$

8. $2(x-3)^2 + 10 = 24$

Solve each quadratic equation by **Completing the Square**:

9. $x^2 + 4x - 12 = 0$

10. $x^2 - 10x + 14 = 0$

11. $x^2 + 8x + 4 = 0$

Solve each quadratic equation by **the Quadratic Formula**:

12. $x^2 + 3x + 1 = 0$

13. $2x^2 - 28x = 4$

14. After t seconds, a ball tossed in the air from the ground level reaches a height of h feet given by the equation $h(t) = -16t^2 + 144t$.

- What is the height of the ball at 3 second? $h(3) =$
- Find the number of seconds the ball is in the air when it reaches a height of 224 feet. $224 = -16t^2 + 144t$
- After how many seconds will the ball hit the ground before rebound?
 $0 = -16t^2 + 144t$

15. A rock is dropped from the top of a tall building, 382 feet high. The path, in feet, is given by $h(t) = -16t^2 + 382$. How long after the rock is thrown is it on the ground? $0 = -16t^2 + 382$

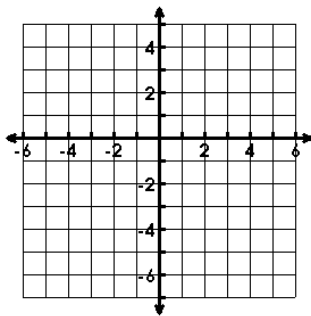
16. The length of a rectangle is 5 cm more than the width. The area is 50 cm^2 . Find the dimensions of the rectangle.

17. The dimensions of a rectangular garden were 2 m by 4 m. Each dimension was increased by the same amount. The garden then had an area of 48 m^2 . Find the dimensions of the new garden. (Hint: Let x be the amount of increase.)

Graph the following equation. Then, write the characteristics for the graph.

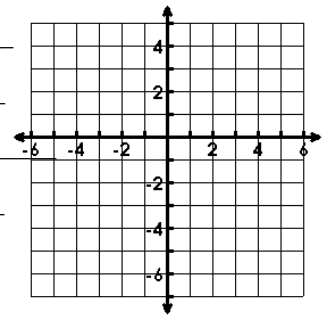
18. $y = 2(x+1)^2 - 5$

- Vertex: _____
- Axis of Sym.: _____
- Range: _____
- End Behavior: _____

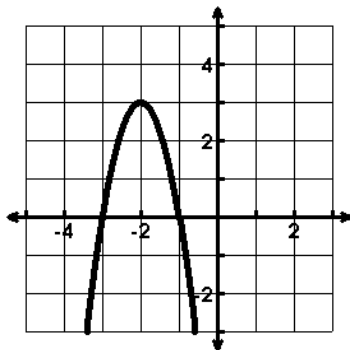


19. $y = -x^2 + 4x$

- Vertex: _____
- Axis of Sym.: _____
- Increasing: _____
- Decreasing: _____



20.



- Describe the transformations: _____
- Write the equation in vertex form: _____
- Roots: _____

Describe the transformations to the parent function in the given equations.

Function	a	h	k
21. $-f(x+2) - 5$			
22. $3f(x-4) + 2$			
23. $\frac{1}{2}f(x) - 1$			
24. $-f(x-2)$			

Solve using any method.

25. $x^2 - 14x = -10$

Change the equations to standard form.

26. $y = 2(x - 1)^2 + 4$

27. $y = -(x + 4)^2 - 6$

Change the equations to vertex form.

28. $y = -3x^2 + 6x - 2$

29. $y = 2x^2 + 8x + 1$

An object is projected into the air with a path described by the function $h(t) = -16t^2 + 96t + 160$ where h is the height above the ground in feet and t is the time in seconds since the object started along the path.

30. Find the time the object changes direction.

31. Find the maximum height of the object.

32. Describe the location of the object at 2.5 seconds.

The height, in meters, of a ball as it falls at a given time (x), in seconds, can be found using the equation $f(x) = -4x^2 + 36$.

33. At what height does the ball **start**?34. When does the ball hit the **ground**?