

NAME _____ DATE: _____ PERIOD: _____

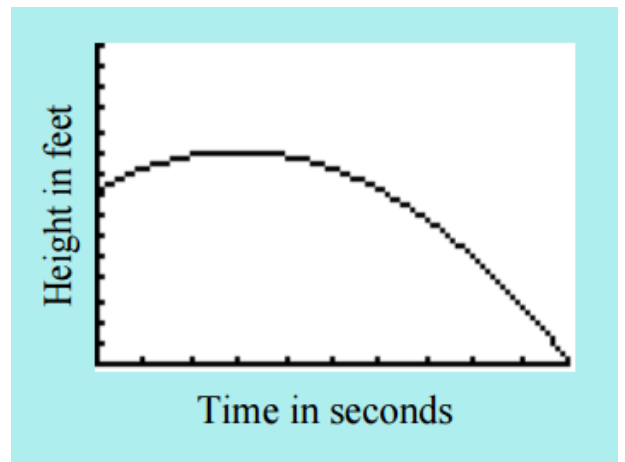
5th 6 Weeks Credit Recovery REVIEW**Quadratic Functions – Part 1**

1. Answer the following based on the graph.

A) What is the y-intercept? What does it represent?

B) What is the x-intercept? What does it represent?

C) Identify the vertex

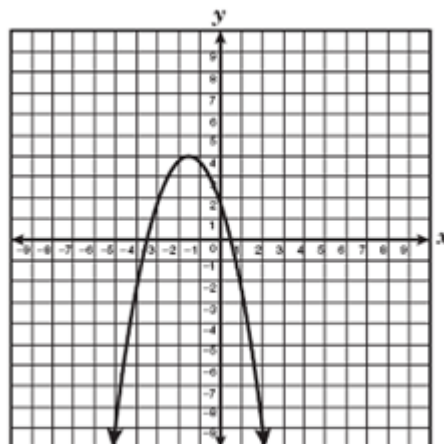


2. The area of a rectangle is represented by the equation $w^2 + 4w = 60$, where w is the width of the rectangle. Find the width.

3. Find the vertex of the quadratic function of $f(x) = -4x^2 + 12x - 5$.

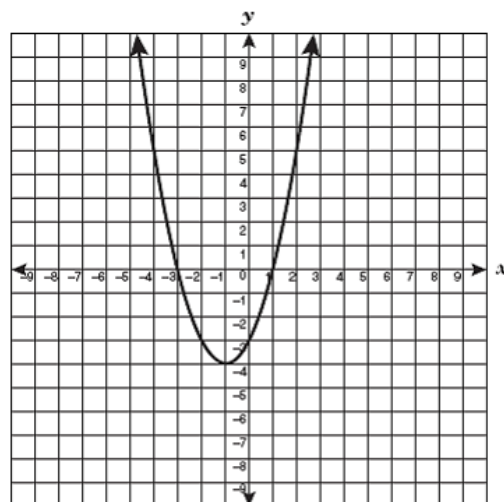
4. What are the solutions to the quadratic equation $x^2 - 3x - 15 = 0$?

5. What are the y-intercepts and x-intercepts of the graph below. Write these points as ordered pairs.



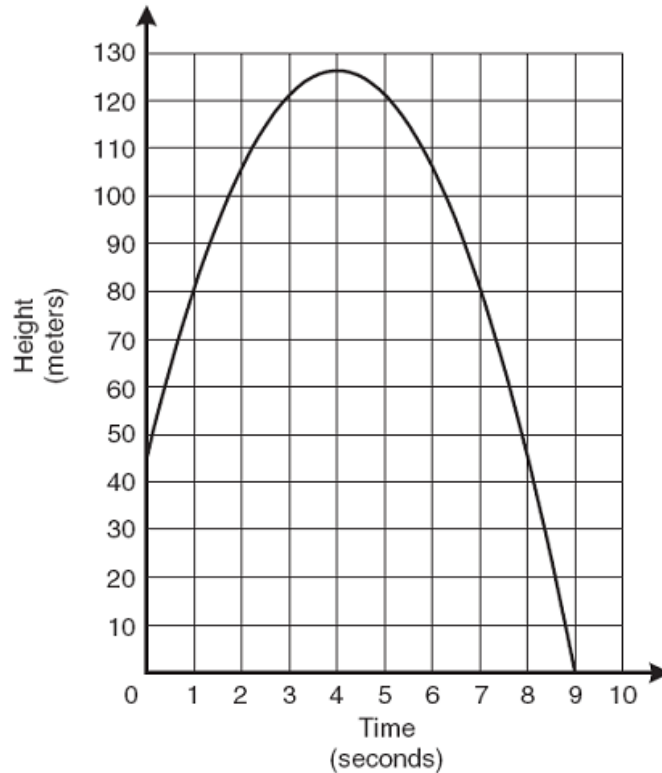
6. Using the graph in #5 find the equation for the axis of symmetry.

7. What are the roots of the quadratic function shown below?



8. Find the zeros of $f(x) = -4x + 8$.

The graph below show the height of a baseball from the time it is thrown from the top of a building until the time it hits the ground.



9. What conclusion can be made about the path of the baseball?

- A** The baseball reached its maximum height at 9 seconds.
- B** At 0 seconds, the baseball was 125 meters off the ground.
- C** The baseball was in flight for 4 seconds.
- D** The maximum height of the baseball was 125 meters.

10. At what time is the baseball at a height of 80 meters?

- A** 1 second
- B** 1 second and 7 seconds
- C** 1 second and 4 seconds
- D** 9 seconds

11. When did the baseball hit the ground?

- A** 125 seconds
- B** 9 seconds
- C** 4 seconds
- D** 45 seconds

12. Approximately how much time elapse while the baseball is 70 meters or more above the ground?

- A** 0.5 seconds
- B** 4 seconds
- C** 6.5 seconds
- D** 7 seconds

Quadratic Functions – Part 2

Match each graph to its corresponding equation.

- _____ 13. $y = x^2$
- _____ 14. $y = x^2 + 3$
- _____ 15. $y = (x - 2)^2 + 1$
- _____ 16. $y = -3x^2$
- _____ 17. $y = -x^2$
- _____ 18. $y = (x + 2)^2 + 1$
- _____ 19. $y = \frac{1}{2}x^2$
- _____ 20. $y = 2x^2 - 3$

Answer the following.

21. What is the domain and range of Graph F?

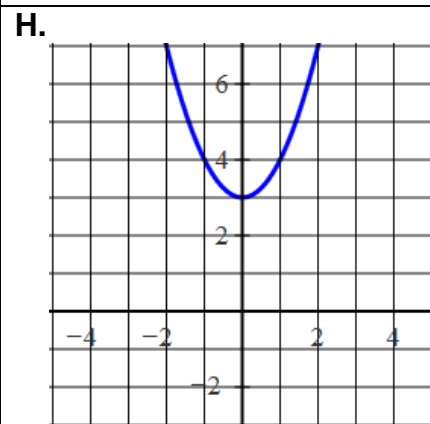
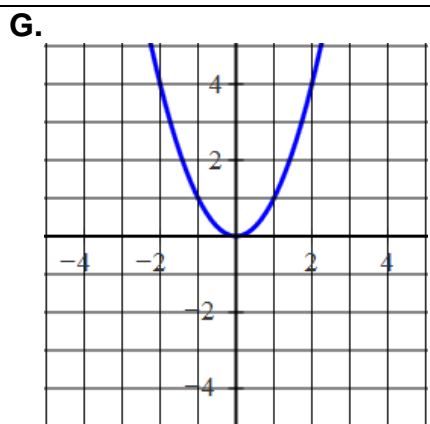
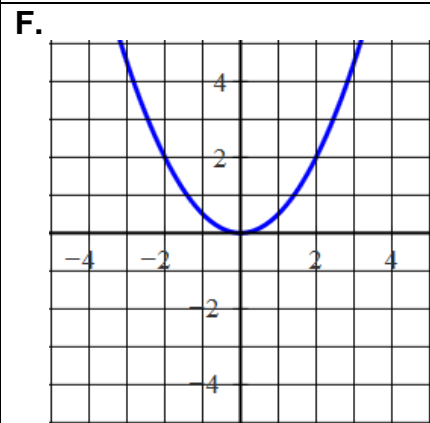
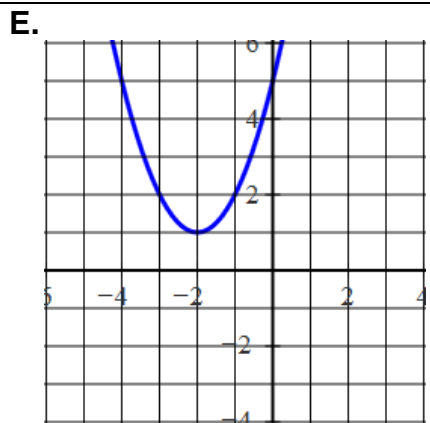
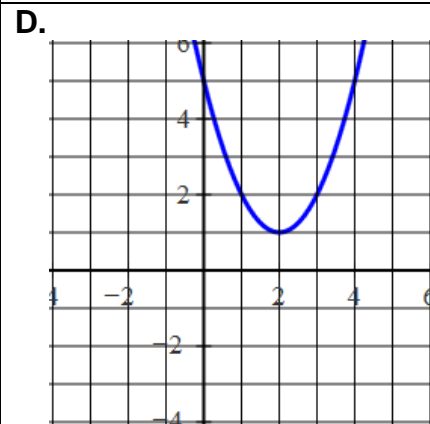
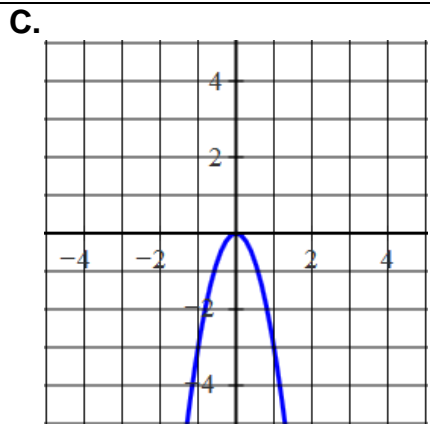
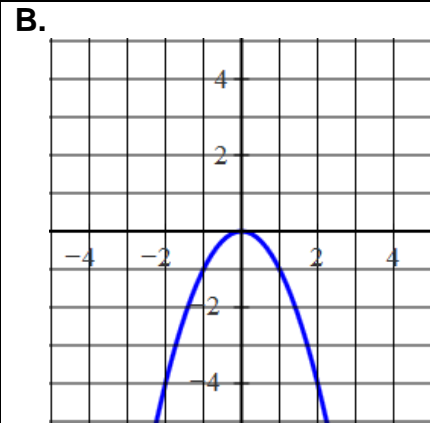
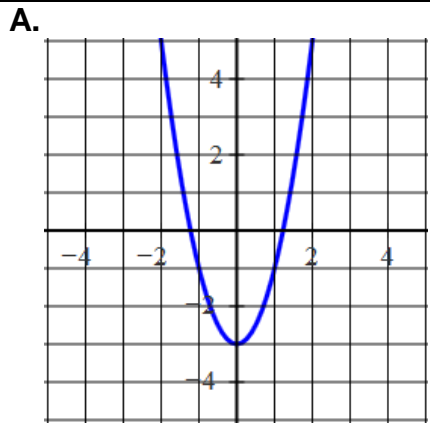
D: _____

R: _____

22. What is the vertex and axis of symmetry of Graph D?

Vertex: _____

Axis of Symmetry: _____



Answer the following.

23. If the graph of the quadratic parent function is stretched by a factor 2, shifted 2 units up, and 6 units to the right, write the equation that could represent the transformed graph.

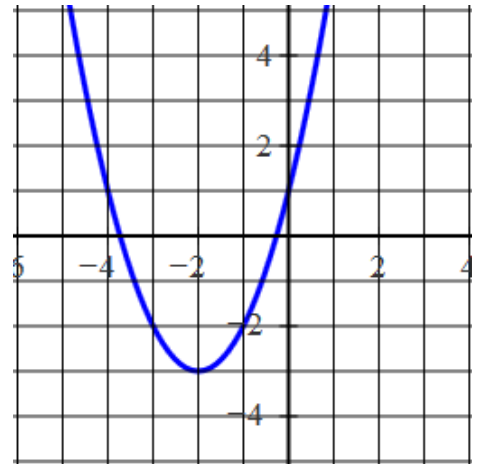
24. The quadratic parent function is compressed by a factor of $\frac{1}{4}$, reflected across the x-axis, and shifted down 12 units. Write an equation that represents the transformed function.

25. Describe the steps that transformed the parent function $y = x^2$ into the following function:
 $f(x) = (x + 4)^2 + 6$

What is the vertex of the new function?

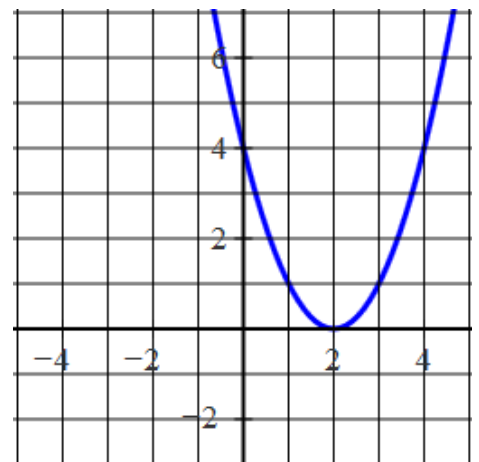
_____ 26. Which function matches the graph shown?

- A. $f(x) = (x - 3)^2 + 2$
- B. $f(x) = (x - 2)^2 + 2$
- C. $f(x) = (x + 3)^2 - 2$
- D. $f(x) = (x + 2)^2 - 3$



_____ 27. Which function matches the graph shown?

- A. $f(x) = -(x - 2)^2$
- B. $f(x) = -(x + 2)^2$
- C. $f(x) = (x - 2)^2$
- D. $f(x) = (x + 2)^2$



28. Circle the transformations that apply:

Compared to the graph of the parent function $y = x^2$ the graph of $f(x) = -3x^2 - 3$ is:

Stretched

Shifted right

Shifted up

Compressed

Shifted left

Shifted down

Reflected across x-axis

29. Circle the transformations that apply:

Compared to the graph of the parent function $y = x^2$ the graph of $f(x) = (x + 4)^2 + 2$ is:

Stretched

Shifted right

Shifted up

Compressed

Shifted left

Shifted down

Reflected across x-axis

30. Circle the transformations that apply:

Compared to the graph of the parent function $y = x^2$ the graph of $f(x) = -(x - 4)^2$ is:

Stretched

Shifted right

Shifted up

Compressed

Shifted left

Shifted down

Reflected across x-axis

EXPONENTIAL FUNCTIONS

State whether the function is increasing or decreasing.

31. $f(x) = 3^x$

Increasing/Decreasing

Asymptote: _____

Domain: _____

Range: _____

32. $f(x) = \left(\frac{1}{5}\right)^x$

Increasing/Decreasing

Asymptote: _____

Domain: _____

Range: _____

Complete the table of values and sketch the graph of the exponential function.

$$33. f(x) = \left(\frac{1}{3}\right)^x$$

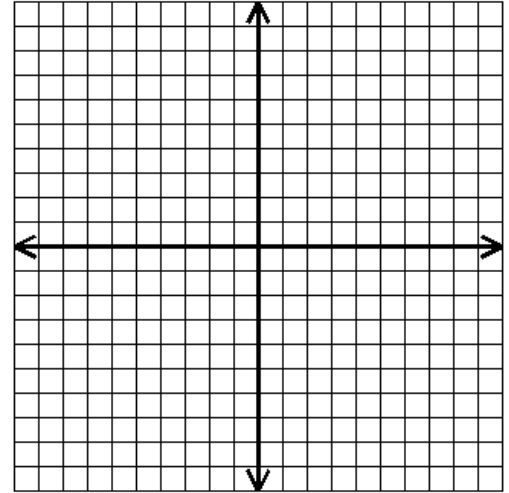
x	y
-2	
-1	
0	
1	
2	

Increasing/Decreasing

Asymptote: _____

Domain: _____

Range: _____



Use the following formulas to complete #34 and 35.

Exponential Growth:

$$y = a(1 + r)^t$$

y = final amount

a = initial amount

Exponential Decay:

$$y = a(1 - r)^t$$

r = rate of growth (decimal)

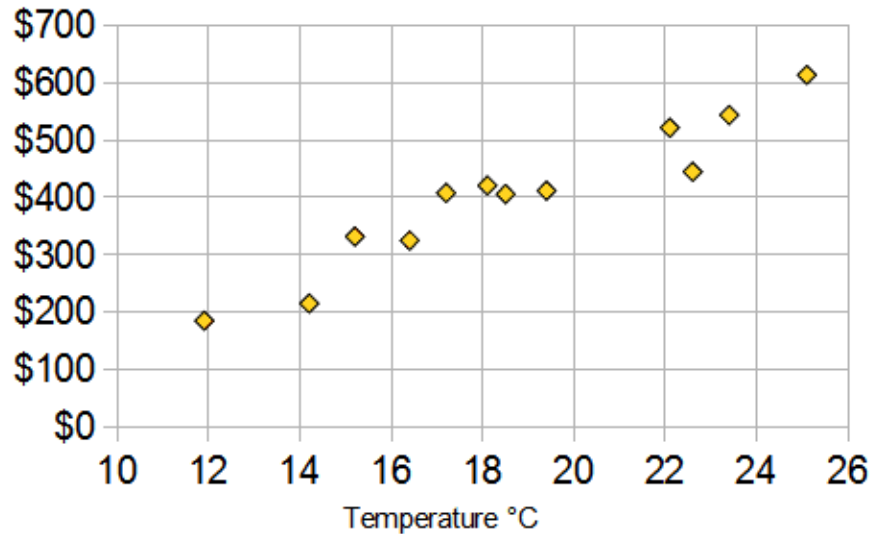
t = time

34. Kyle has saved \$500 of the money he earned working at Carousel Music. If he spends 10% of the money each week, how much money will he have at the end of 50 weeks?

35. The "Mendelssohn" Stradivarius violin was estimated to be worth approximately \$1,700,000 in 1990. The violin is expected to increase in value by approximately 7.5% each year. Estimate the value of the violin in the year 2010.

SCATTER PLOTS & REGRESSIONS

A local ice cream shop keeps track of how much ice cream they sell versus the noon temperature on that day. The scatterplot below shows their sales over the last 12 days. Use this graph to answer questions 41-44.



	<p>36. What type of correlation does the scatter plot show?</p> <p>A. Positive B. Negative C. No correlation D. Constant</p>
	<p>37. Which of the following is closest to the ice cream sales when the temperature is 25°C?</p> <p>F. 500 G. 200 H. 700 J. 600</p>
	<p>38. At what temperature were the ice cream sales closest to \$450?</p> <p>A. 20 B. 24.5 C. 25 D. 22.5</p>
	<p>39. Draw a trend line and predict the sales when the temperature is 21°C.</p> <p>F. 550 G. 460 H. 325 J. 625</p>

Circle whether each relationship is linear, quadratic, or exponential. Then, find the equation that represents each situation.

40.

x	y
-1	1.5
0	3
1	6
2	12

Lin / Quad / Exp

Equation: _____

41.

x	y
-2	4
-1	-2
0	-4
1	-2
4	28

Lin / Quad / Exp

Equation: _____

42.

x	-2	-1	0	4
y	-3	-6	-5	39

Lin / Quad / Exp

Equation: _____

43.

x	-2	-1	0	4
y	10	6	2	-14

Lin / Quad / Exp

Equation: _____

Circle what type of function includes each of the following sets of points.

44. $\{(-4, 10), (2, -8), (4, -14), (6, -20)\}$

Lin / Quad / Exp

What is the parent function of this relation?

45. $\{(-3, 11), (2, 6), (5, 27)\}$

Lin / Quad / Exp

What is the parent function of this relation?

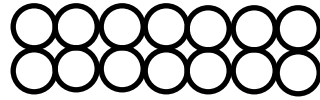
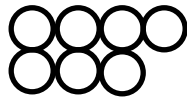
The table below shows the approximate heights, y , for a ball thrown by a shot-putter as it travels a distance of x meters horizontally. Use this table to answer questions 51 – 52.

Distance (m)	7	20	33	47	60	67
Height (m)	8	15	24	26	24	21

46. When graphed, the data appears to have what type of relationship? Lin / Quad / Exp

47. Use regression in the calculator to find the equation of the line of best fit. Using the equation you obtained, what is a reasonable estimate of the height of the ball when the distance is 90 meters? Round your answer to the nearest hundredth.

48. The given set of circles form a pattern.



If the pattern continues, which of the following expressions can be used to find how many circles are in the n^{th} figure?

How many circles are in the 9^{th} figure?

49. The first 4 terms in a pattern are shown below.

2, 4, 8, 16,...

If this pattern continues what expression can be used to find the n^{th} term?

What is the 10^{th} term?

50. Which statement comparing the linear and quadratic parent functions is false?

- F. Both parent functions have a domain of all real numbers
- G. Both parent functions contain the point (0, 0)
- H. The linear parent function is a line; the quadratic parent function is a parabola.
- J. Both parent functions have a range of all real numbers.