

Chapter 9B Test Review due on the day of the test. NO WORK, NO CREDIT

- **Review will not be graded unless answers are written on separate paper.**
- **Eligibility to retest: complete accurate review, all homework and missing assignments must be turned in prior to retesting. Tutoring is required. Retesting window is 1 week following return of original test.**

1. Which of the quadratic functions has the widest graph?

a. $y = \frac{1}{3}x^2$

b. $y = -4x^2$

c. $y = 0.3x^2$

d. $y = -\frac{4}{5}x^2$

2. Tell whether the function is quadratic. Explain.

3. Tell whether the function is quadratic. Explain.

x	-2	-1	0	1	2
y	-8	-1	0	1	8

x	-4	-2	0	2	4
y	21	1	-3	9	37

For #4-5: **A)**Identify a, b, and c. **B)**What is the axis of symmetry? **C)**What is the vertex? **D)**What is the y-intercept? **E)**Show your table of values and graph the quadratic equations. **F)**What is/are the solution(s) to the function?

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

5. $y = -x^2 - 4x + 5$.

6. What is the resulting equation when the graph for problem #4 is translated up 20 units?

7. What is the resulting equation when the graph for problem #4 is translated down 30 units?

8. Use the Zero Product Property to solve the equation $(2x - 5)(x + 3) = 0$.

Solve the equation by factoring.

9. $z^2 - 6z - 27 = 0$

10. $3z^2 + 3z - 6 = 0$

11. $15 = 8x^2 - 14x$

12. $x^2 + 2x - 8 = 0$

13. $-3w^2 - 6w + 3 = 0$

Solve the equation using square roots.

14. $4x^2 + 25 = 0$

15. $-x^2 + 16 = 0$

16. A rectangular picture measuring 3 in. by 5 in. is surrounded by a frame with uniform width x . Write a quadratic function in standard form to show the combined area of the picture and frame.

Solve by using the Quadratic Formula. If necessary, round to the nearest hundredth

17. A) $3x^2 + 5x - 1 = 0$. B) $x^2 - 10x + 9 = 0$

18. The height of a soccer ball that is kicked from the ground can be approximated by the function $y = -16x^2 + 48x$, where y is the height of the soccer ball in feet x seconds after it is kicked. Graph this function. Find the time it takes the soccer ball to reach its maximum height, the soccer ball's maximum height, and the time it takes the soccer ball to return to the ground.

19. The height of an arrow that is shot upward at an initial velocity of 40 meters per second can be modeled by $h = 40t - 5t^2$, where h is the height in meters and t is the time in seconds. Find the time it takes for the arrow to reach the ground. What is the maximum height that the arrow will reach?

20. Workers preparing for the city's Fourth of July celebration shoot an object straight up with an initial velocity of 210 ft/s² from a height of 3 feet above the ground. Will the object reach a height of 670 feet 0, 1, or 2 times? Use the equation $h = -16t^2 + vt + c$ where v is the initial velocity in feet per second and c is the initial height in feet of the object above the ground. Use the discriminant to explain your answer.

21. A ball is thrown into the air with an upward velocity of 36 ft/s. Its height h in feet after t seconds is given by the function $h = -16t^2 + 36t + 9$.
- In how many seconds does the ball reach its maximum height? Round to the nearest hundredth if necessary.
 - What is the ball's maximum height?

Find the number of real number solutions for the equation, by using the discriminant.

22. $x^2 - 4 = 0$ 23. $x^2 - 6x + 9$ 24. $6x^2 + 4x + 4 = 0$
25. In the quadratic equation $2x^2 - 3x - r = 0$, r is a constant. If $x = 4$ is one of the solutions to the quadratic what is the value of r ?
26. A) The dimensions of a rectangle are $L = 3x - 3$ and $W = x + 2$, write a polynomial in quadratic form to represent this area. **(as usual, draw a picture!)**
 B) If the area of this rectangle is 30 units, solve for the x .

Spiral Exam Chapters 1 – 9.3

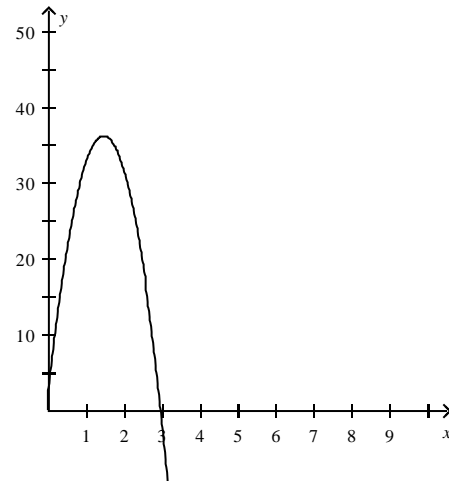
- solve a systems of equations by graphing $\begin{cases} x + y = 2 \\ y = x - 4 \end{cases}$ (ans. (3, -1))
- describe the value of the leading coefficient, a , for a parabola that opens upward, that opens downward.
- understand the role of a, b , and c in a quadratic. How is the parent graph transformed?
- exponents! correct use of the power to power property, multiplying and dividing $(3x^4y)^3 = ?$ (ans. $27x^{12}y^3$)
- read/interpret graphs, determine domain and range of a graph
- parallel and perpendicular lines, what are the rules/relationships regarding their slopes?
- use algebra to calculate values of sides of polygons, given a perimeter and the relationships between the sides: Length of a rectangle is 3 more than twice the width, the perimeter is 66 inches what are the dimensions of the rectangle? (ans. $w=10$ in., $l=23$ in.)
- $V = LWH$ and $A = LW$ So, how would you find the value of H ? $\frac{V}{A} = \frac{LWH}{LW} = H$

Chapter 9-B Test Review

Answer Section

1. ANS: C REF:10-1 Exploring Quadratic Graphs
2. Yes, the function is quadratic. The second differences are constant.
REF: Page 590
3. No, the function is not quadratic. The second differences are not constant.
REF: Page 590
4. A. $a=2, b=-4, c=4$, B) $x=1$, C) $(1, 2)$ D) $y\text{-incpt}=-4$, E) Check your graphing calc. for table and graph. F) no real solutions
REF: Page 601
5. A) $a=-1, b=-4, c=5$ B) $x=-2$, C) $(-2,9)$ D) $y\text{-incpt}=5$, E) , E) Check your graphing calc. for table and graph. F) $(-5, 1)$
REF: Page 601
6. $2x^2 - 4x + 24 = y$
7. $-x^2 - 4x - 25 = y$
8. $x = \frac{5}{2}$ and $x = -3$
REF: Page 630
9. $z = -3$ or $z = 9$
REF: 10-4 Factoring to Solve Quadratic Equations
10. $z = 1$ or $z = -2$
REF: 10-4 Factoring to Solve Quadratic Equations
11. $-\frac{3}{4}, \frac{5}{2}$
REF: 10-4 Factoring to Solve Quadratic Equations
12. -4 and 2
REF: Page 631
13. -1
REF: Page 631
14. No solution
REF: Page 637
15. ± 4
REF: 10-3 Solving Quadratic Equations
16. $f(x) = 4x^2 + 16x + 15$
17. A) $x \approx 0.18$ or $x \approx -1.85$
B) $x = 1$ and $x = 9$
REF: Page 653

18.



It takes the ball 1.5 seconds to reach its maximum height. The ball's maximum height is 36 feet. It takes the ball 3 seconds to return to the ground. REF: Page 607

19. 8 sec, 80 ft.
REF: Page 632
20. 2 times; The discriminant is positive, so the equation has two solutions.
REF: Page 655
21. 1.13 s; 29.25 ft
REF: 10-2 Quadratic Functions
22. 2 solution
REF: 10-7 Using the Discriminant
23. 1 solution
REF: 10-7 Using the Discriminant
24. There are no real solutions.
REF: Page 654
25. $r = -20$
26. A) $3x^2 + 3x - 6 = 0$
B) $3x^2 + 3x - 6 = 30, \therefore x = 3$ and $x = -4$