

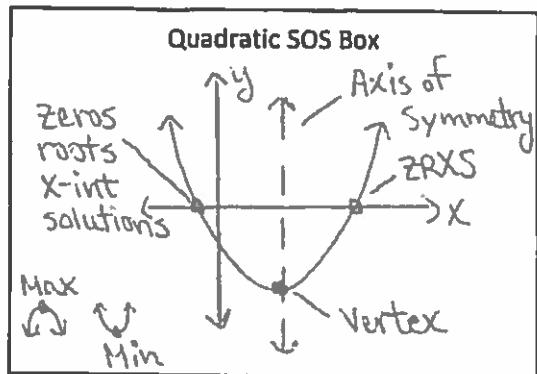
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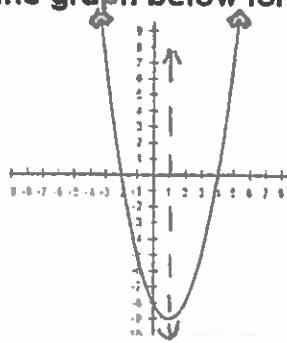
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Quadratic Test Review



Use the graph below for #1-6.

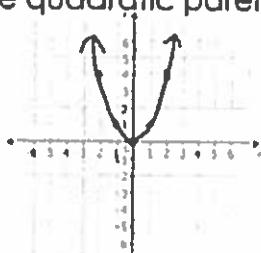


Note: I drew in the axis of symmetry... it will not be given

- Is the graph quadratic, linear, or neither?
Quadratic
- What is the vertex? $(1, -9)$
Is it a maximum or minimum?
minimum at $y = -9$
- What is the domain?
all real numbers
- What is the range?
 $y \geq -9$
- What is the axis of symmetry?
 A. $x = -9$ C. $y = 1$ (X is means
 B. $x = 1$ D. $y = -9$ $x =)$
- What are the roots? $x = -2$ and $x = 4$

- What is the quadratic parent function equation?
 $y = x^2$

- Graph the quadratic parent function.

Algebra 1 - ~~Review~~ Quadratic FunctionsUse the equation $y = -x^2 + 2x + 3$ to answer #9-13.

- What are the zeros?

- A. $\{1, 3\}$
 B. $\{-1, 3\}$
 C. $\{0, 0\}$
 D. $\{-1, -3\}$

- What is the vertex? $(1, 4)$

- What is the axis of symmetry? $x = 1$

- What is the domain?

all real numbers

- What is the range? $y \leq 4$

- What are the solutions to quadratic function below?

(look for where $y = 0$ since solutions are x-int)

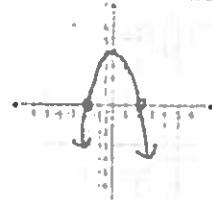
X	0	1	2	3	4	5	6
Y	6	0	-4	-6	-6	-4	0

 \uparrow 1 and 6 \downarrow

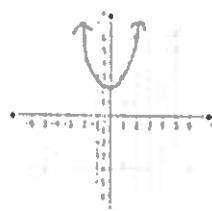
- What are the x intercepts of the quadratic function below?

$$y = (x + 8)^2 \quad (-8, 0)$$

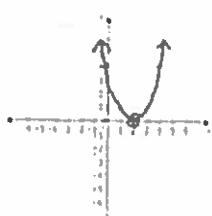
- Sketch a parabola with two solutions.



- Sketch a graph with no solutions.



- Sketch a graph with one solution.

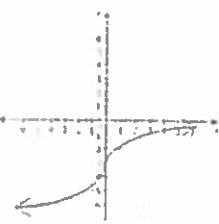


Identify if the following are linear, quadratic, or neither for #19-22.

19.	X	-6	-5	-4	-3	-2	-1	0
	Y	7	5	3	1	-1	-3	-5

(Plot the points) Linear

20. Neither



21. $y = x^3 + 2$ Neither

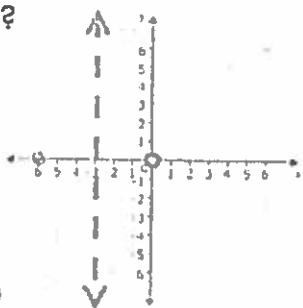
22. $y = 3(x + 1)^2 - 2$ Quadratic

A. 0.5.

23. If the axis of symmetry is $x = -3$ and an x intercept is 0, what are the solutions to the quadratic graph?

$$\boxed{X=0 \text{ and } X=-6}$$

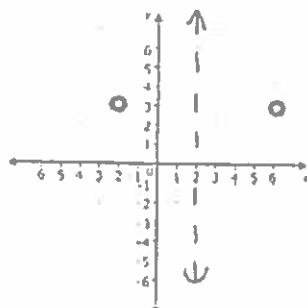
(reflect the point across the A.O.S.)



24. If the following two points are on a parabola, what is the axis of symmetry?

$$\boxed{X=2}$$

(the axis of symmetry is directly in the middle of the two points)



25. Describe the transformation from the quadratic parent function to $y = \frac{2}{3}x^2 - 2$.

$y = \frac{2}{3}x^2 - 2$ is wider and shifted down 2 units from $y = x^2$

parent function for quadratics
↓

26. If $y = x^2$ is changed to $y = -x^2 + 6$, describe the transformations.

$y = -x^2 + 6$ opens in the opposite direction (opens down) and is shifted up 6 units from $y = x^2$

27. If $f(x) = x^2 + 2$ is transformed to create the quadratic function $g(x) = 3x^2 - 4$, what transformations took place?

$g(x)$ is narrower and shifted down 6 units from $f(x)$

28. If the graph of $y = \frac{1}{5}x^2 + 4$ is made narrower and translated down three units, which of the following is a possible equation for the new graph?

A. $y = 2x^2 + 7$

C. $y = \frac{1}{5}x^2 + 1$

B. $y = 2x^2 + 1$

D. $y = x^2 + 7$

29. If the graph $y = -3x^2$ is transformed so it opens up and is wider, which of the following is a possible equation for the new graph?

A. $y = -x^2$

C. $y = 3x^2$

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

D. $y = 5x^2$

30. If the -5 in $y = -x^2 - 5$ is changed to a positive number, what is the effect on the graph?

A. The graph gets wider

B. The graph gets narrower.

C. The graph translates up.

D. The graph is reflected.

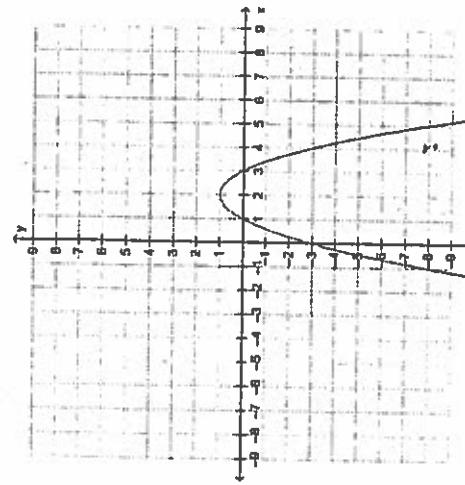
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Chapter Nine Chapter Test Review Classwork

Multiple Choice
Identify the choice that best completes the statement or answers the question.

1. Which statement accurately describes this parabola?



2. Which sets have exactly three functions whose parabolas are narrower when compared to the parent function
- $y = x^2$
- ?

	Set I	Set II	Set III
$\frac{y}{x^2} = 1$	$-5x^2 + y = 0$	$y - 3 = x^2$	
$y + 14 = -15x^2$	$y = -\frac{1}{5}x^2$	$y = 0.25x^2 - 3$	
$y = 0.87x^2$	$y - 3 = -x^2$	$2y - 3 = -5x^2$	
$0.49y - 8 = x^2$	$-7y = 5x^2$	$y = -0.65x^2 + 8$	
$5y = 3x^2 + 14$	$y = -15x^2 + 14$	$y + 6 = 12x^2$	

- Set I only
Set II only
Set III only
Sets I and II
Sets I and III
Sets II and III

- All of the sets
None of the sets
3. Solve using square roots. Round the answer to the nearest one-thousandth if necessary.

$$-2x^2 + 9 = -41$$

4. Find the roots (zeros) of this quadratic equation by completing the square.

$$4x^2 - 8x = -2$$

5. What term needs to be added to this quadratic expression to turn it into a perfect square trinomial?

$$\boxed{16}$$

$$\frac{4x^2 - 8x + 16 = 14}{4}$$

$$x^2 - 2x + 4 = \frac{7}{2}$$

$$(x - 2)^2 = \frac{7}{2}$$

$$x - 2 = \pm \sqrt{\frac{7}{2}}$$

$$x = 2 \pm \sqrt{\frac{7}{2}}$$

ID: A

Name: _____

Find the zeros of the quadratic equation using the quadratic formula.

$$6. -3x^2 + 4x + 4 = 0 \quad 2 \text{ or } -\frac{2}{3}$$

7. What is the axis of symmetry of the quadratic equation $y = -x^2 + 4x - 37$ 28. The function, $h(t) = -16t^2 + 64t + 20$, can be used to calculate the height of a projectile in feet as a function of time in seconds. What is the maximum height the projectile? 849. A parabola has an axis of symmetry of $x = -1.5$, and one of its zeroes at -2 . Where is the other zero? -1

Find the zeros of these quadratic equations.

$$10. v^2 - 6v + 9 = 0 \quad 3$$

$$11. 6v^2 - 19v + 15 = 0 \quad \frac{3}{2} \text{ or } \frac{5}{3}$$

$$12. y^2 + 7y + 12 = 0 \quad -4 \text{ or } -3$$

$$13. 16x^2 - 4 = 0 \quad \frac{1}{2} \text{ or } -\frac{1}{2}$$

14. The function, $h(t) = -16t^2 + 88t$, can be used to calculate the height of a projectile in feet as a function of time in seconds. How many seconds is the projectile in the air after launch? 5.5

15. If this sequence is quadratic, find the second difference, if it is not quadratic answer "not quadratic".

x	1	2	3	4	5	6	7	8
$f(x)$	4	-4	-12	-20	-28	-36	-44	-52

$$\sqrt{-8} \quad \sqrt{-8} \quad \sqrt{-8} \quad \text{not quadratic}$$

Name: _____

16. An empty lot is shaped in the form of a trapezoid as shown below. The area of the lot is 4422 ft². The width of the front of the lot is $7x$. What is the width of the back of the lot? Round the answer to the nearest one-thousandth of a foot if necessary.

$$7x$$

$$A = \frac{(b_1 + b_2) h}{2}$$

$$4422 = \frac{(9x + 7x) 8x}{2}$$

$$4422 = \frac{16x \cdot 8x}{2}$$

$$4422 = 64x^2$$

$$64x^2 = 4422$$

$$x^2 = \frac{4422}{64}$$

$$x^2 = 69.09375$$

$$x = \sqrt{69.09375}$$

$$x = 8.312$$

17. If this sequence is quadratic, find the second difference, if it is not quadratic answer "not quadratic".

x	1	2	3	4	5	6	7	8
$f(x)$	-10	0	20	50	90	130	170	210

18. The function, $h(t) = -16t^2 + 80t + 50$, can be used to calculate the height of a projectile in feet as a function of time in seconds. How long does it take the projectile to reach its maximum height? 2.5 sec19. Solve using square roots. Round the answer to the nearest one-thousandth if necessary. $-x^2 + 15 = 96$ neg. discriminant
no real solution20. What is the y-intercept of the quadratic equation $y = x^2 - 8x + 7$? (0, 7)