

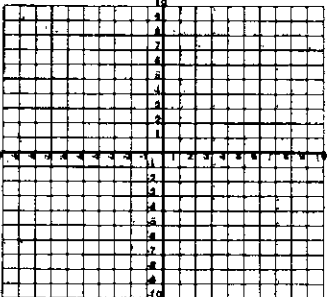
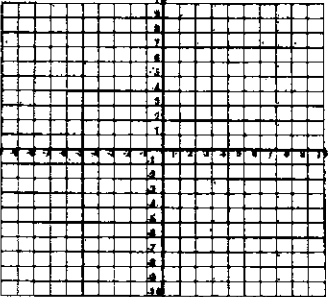
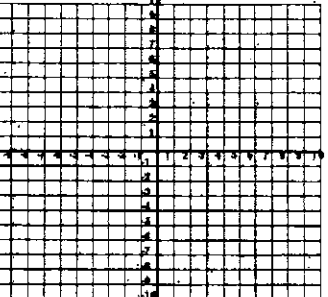
Unit 8 Test Study Guide

Quadratic Equations

Topic #1: Axis of Symmetry & Vertex

1. $y = -x^2 + 10x - 28$	2. $y = 2x^2 + 4x$	3. $y = x^2 - 9$
Axis of Symmetry _____	Axis of Symmetry _____	Axis of Symmetry _____
Vertex _____	Vertex _____	Vertex _____

Topic #2: Graphing Quadratic Equations

4. $y = x^2 - 8x + 15$	<table border="1"> <thead> <tr> <th>x</th> <th>y</th> </tr> </thead> <tbody> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> </tbody> </table> 	x	y																			Axis of Symmetry: _____ Vertex: _____ Domain: _____ Range: _____ Zeros: _____
x	y																					
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Topic #3: Solving Quadratic Equations (By Factoring/Square Roots)

7. $x^2 - 7x = 44$	8. $2x^2 + 3x - 72 = x^2 + 2x$

11-20
Solve
using
any
method

9. $x^2 + 75 = 30x$ Solve by completing square.	10. Solve by completing the square. $x^2 - 16x - 3 = 0$
11. $9x^2 - 36x = 0$	12. $16x^2 = 10x$
13. $x^2 - 100 = 0$	14. $25x^2 + 1 = 5$
15. $(x - 1)(x - 8) = 0$	16. $(x - 7)(x + 3) = 24$

17. $x^2 - x = 18$	18. $-x^2 + 4x = x - 20$
19. $8x^2 = 20x$	20. $4x^2 = 81$

Topic #5: Area Problems

21. If the area of the rectangle below is 42 inches squared, find the value of x .



$x + 8$

$x - 3$

22. The length of a rectangle is five feet less than its width. If the area of the rectangle is 84 square feet, find its dimensions.

Topic #6: Projectile Motion

23. Natalie found a tennis ball outside a tennis court. She picked up the ball and threw it over the fence into the court. The path of the ball can be represented by $h = -16t^2 + 18t + 5$

- a. Find the maximum height of the tennis ball. b. How long will it take to reach the ground?

24. A circus acrobat is shot out of a cannon with an initial upward speed of 50 ft/s. The equation for the acrobat's pathway can be modeled by $h = -16t^2 + 50t + 4$.

- a. Find the maximum height of the acrobat. b. How long will it take to reach the ground?

Decide if the function is even, odd, or neither.

a. $f(x) = 2x$

b. $f(x) = 3x^4 - 2x^2 - 6$

c. $f(x) = 2x^3 - 3x^2$

26. Find the average rate of change for the function over the given interval.

$$f(x) = x^2 + 1$$

from: $x = -1$ to $x = 3$

27. Rewrite the quadratic function from standard form to vertex form.

a. $y = x^2 + 10x - 1$

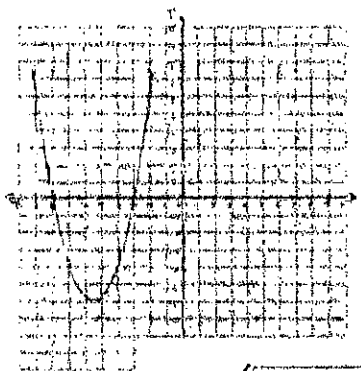
b. $y = 3x^2 - 24x + 4$

28. Rewrite the quadratic function from vertex form to standard form.

$$y = -(x + 3)^2 - 6$$

29. Find a quadratic equation in standard form that has roots of 5 and -3.

30. Find the quadratic equation from the graph:



$$y = (\quad)(\quad)$$

31. Use the determinant to find the number of solutions.

a. $0 = x^2 - 4x + 4$

b. $2x^2 + 5x - 1 = 0$

c. $2x^2 + 5x + 4 = 0$