

I'm not a robot   
reCAPTCHA

**Open**

# Skills practice graphing quadratic functions answers

Advanced Math  
Workbooks—Vertex Form to Standard Form

Name \_\_\_\_\_ Date \_\_\_\_\_ Hour \_\_\_\_\_

We have been working with quadratic equations in Vertex Form,  $y = a(x - h)^2 + k$ . However, it is more common for quadratic equations to be given to us in Standard Form,  $y = ax^2 + bx + c$ . Today's assignment is for you to practice using FOIL to change equations from Vertex Form into Standard Form. Use the example below to guide your work.

Example:

$$\begin{aligned} y &= -2(x + 3)^2 - 5 \\ y &= -2(x^2 + 6x + 9) - 5 \\ y &= -2x^2 - 12x - 18 - 5 \\ y &= -2x^2 - 12x - 23 \end{aligned}$$

Given: Multiply the quantity squared. (FOIL)  
Distribute the  $a$ .  
Combine like terms.

$$\begin{array}{r} - \\ x^2 + 6x + 9 \\ \hline -2x^2 - 12x - 23 \end{array}$$

Problems:

1. $y = 6(x - 4)^2 - 1$	2. $y = \frac{2}{3}(x + 4)^2 + 6$	3. $y = -5(x - 1)^2 + 4$
4. $y = -\frac{1}{2}(x + 6)^2 - 1$	5. $y = 4(x + 2)^2 - 8$	6. $y = \frac{-2}{3}(x - 9)^2 - 2$
7. $y = (x - 3)^2 + 7$	8. $y = (x + \frac{1}{2})^2 - 2$	9. $y = 10(x - \frac{1}{2})^2 + 5$
10. $y = -2\left(x + \frac{1}{2}\right)^2$	11. $y = 13(x - 2)^2 + 15$	12. $y = 2(x + 8)^2 + 10$

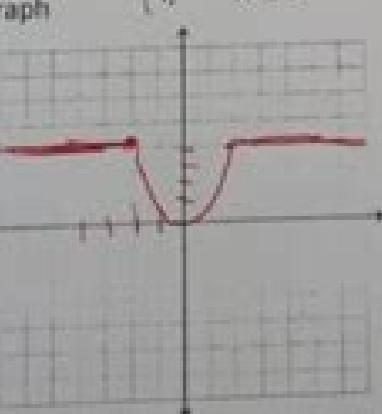
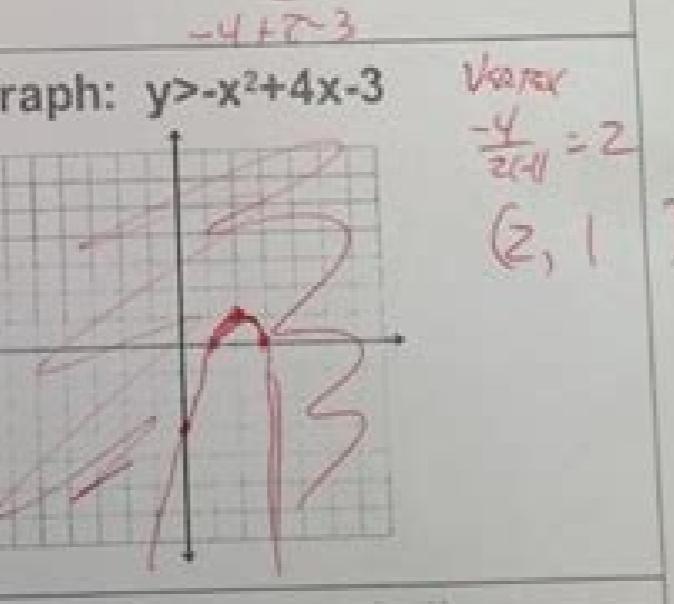
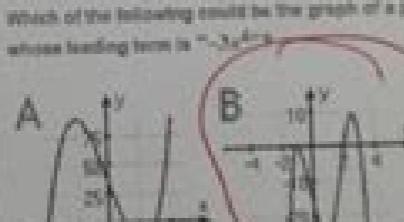
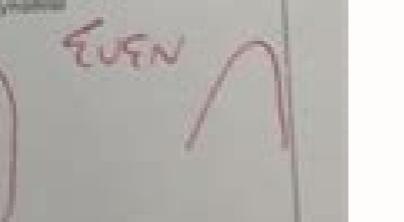
Name **KEY**  
Date \_\_\_\_\_

Solve the Equations for  $y$

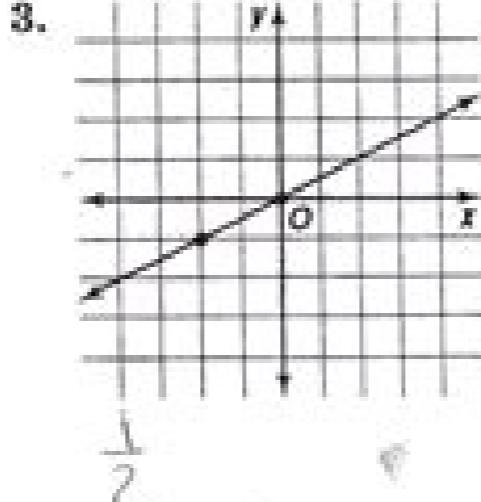
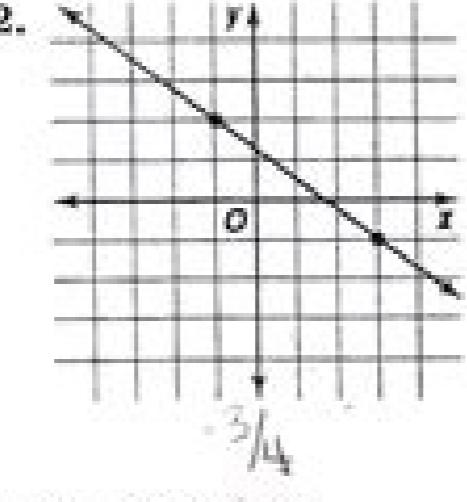
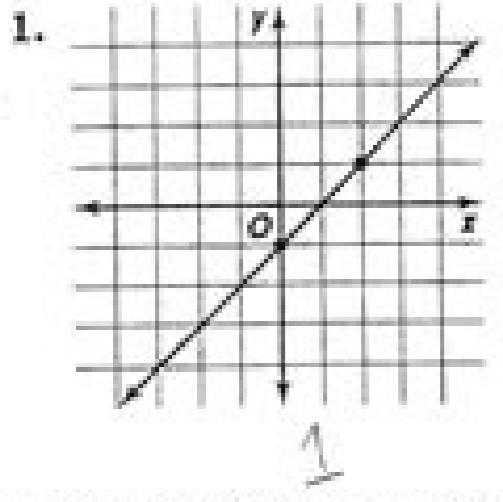
$$\begin{array}{ll} 1) \frac{-3x+1}{-3x} y = \frac{-6}{-3x} & 6) \frac{-2x-y}{-2x} = \frac{4}{-2x} \\ \boxed{y = 3x - 6} & \boxed{\frac{-1}{-1} = 2x+4} \\ 2) \frac{3x-2y}{-2y} = \frac{6}{-2y} & 7) \frac{12+y}{-12} = \frac{4x}{-12} \\ \boxed{y = \frac{3}{2}x - 3} & \boxed{\frac{1}{-1} = 4x-12} \\ 3) \frac{9x+3y}{-9x} = \frac{-12}{-9x} & 8) \frac{1}{2}x + y = 9 \\ \boxed{y = -\frac{1}{3}x - 4} & \boxed{\frac{1}{2}x = \frac{1}{2}x} \\ 4) \frac{7x+7y}{-7x} = \frac{49}{-7x} & 9) \frac{2x+2y+4}{-2x} = \frac{0}{-2x} \\ \boxed{y = -x+7} & \boxed{2y+4 = -2x} \\ 5) \frac{4x+y}{-4x} = \frac{10}{-4x} & 10) \frac{2x+4y}{-2x} = \frac{0}{-2x} \\ \boxed{y = -4x+10} & \boxed{4y = -2x} \\ & \boxed{y = -\frac{1}{2}x} \end{array}$$

## Algebra 2 PreFinal (supp)

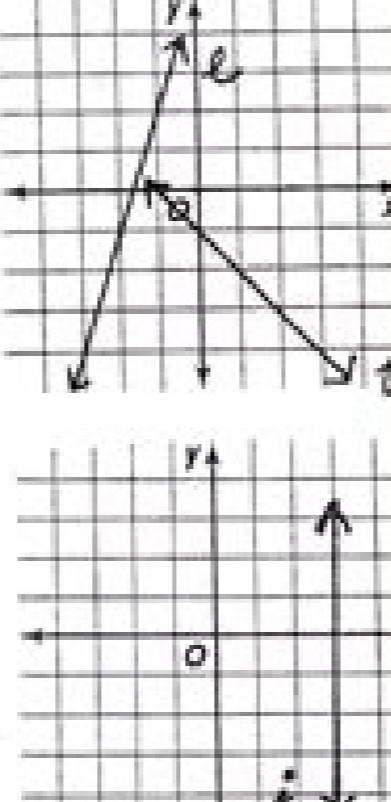
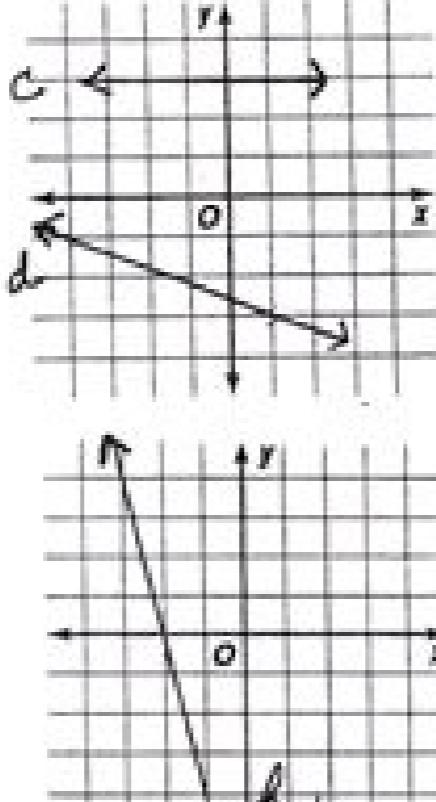
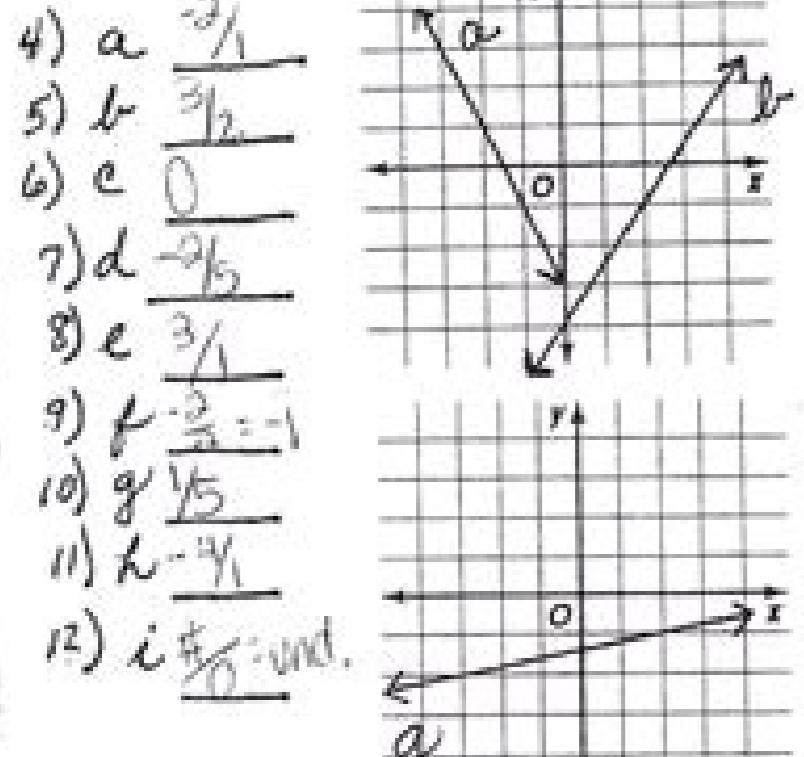
Name \_\_\_\_\_ Per \_\_\_\_\_ Date \_\_\_\_\_

Calculator Allowed- Show all work (attach if on separate paper)	
$\text{Simplify } \frac{z^2 - 1}{z^2 - 4} \cdot \frac{z^2 - 4}{z^2 - 9} \cdot \frac{z^2 - 9}{z^2 - 16}$ $\frac{z^2 - 1}{z^2 - 4} = \frac{(z-1)(z+1)}{(z-2)(z+2)}$ $\frac{z^2 - 4}{z^2 - 9} = \frac{(z-2)(z+2)}{(z-3)(z+3)}$ $\frac{z^2 - 9}{z^2 - 16} = \frac{(z-3)(z+3)}{(z-4)(z+4)}$ $\therefore \frac{(z-1)(z+1)}{(z-2)(z+2)} \cdot \frac{(z-2)(z+2)}{(z-3)(z+3)} \cdot \frac{(z-3)(z+3)}{(z-4)(z+4)} = z-1$	$(4x^3 - 12x + 9) + (3x - 11)$ $4x^3 - 9x - 2$
$(6x^2 - 13x + 4) + (8x^2 + 7x - 25)$ $-2x^2 - 6x - 21$	$(x - 3)(2x^3 - 9x^2 + x - 6)$ $2x^3 - 9x^2 + x - 6$ $2x^4 - 15x^3 + 28x^2 - 9x + 6$
Find the quotient using long division $x^2 - 6x + 4$ $x+1$ $\overline{x^2 - 6x + 4}$ $\underline{-x^2 - x}$ $\overline{-7x + 4}$ $\underline{-7x - 7}$ $\overline{11}$	Find the quotient using synthetic division $(2v^3 - 20v^2 + 56v - 46) \div (v - 6)$ $v - 6 \quad   \quad 2 \quad -20 \quad 56 \quad -46$ $2v^2 - 8v + 8 \quad   \quad 2 \quad -8$ $2v^2 - 8v + 8 \quad   \quad 2 \quad -8$ $\overline{0} \quad \overline{0} \quad \overline{0} \quad \overline{0}$
Mr Lange likes to keep his room within 3 degrees of 74 degrees. Write an absolute value inequality to show the possible temperatures ( $t$ ) that will make him happy. $ t - 74  \leq 3$	Given $f(x) = 3x^3 + 5x^2 + 4x + 3$ , find $f(3)$ $f(3) = 3(3)^3 + 5(3)^2 + 4(3) + 3$ $81 + 45 + 12 + 3 = 141$
$f(x) = \begin{cases} 4, & x \leq -2 \\ x^2, & -2 < x < 2 \\ 4, & x \geq 2 \end{cases}$ Graph 	Graph: $y > -x^2 + 4x - 3$ 
Find the discriminant and state the nature of the solutions $b^2 - 4ac$ $12^2 - 4(2)(5)$ $= 144 - 40 = 104$	Which of the following could be the graph of a polynomial whose leading term is $-x^4$ ? A.  B.  C.  D. 

Find the slope of each line.



Determine the slope of each line named below.



Find the slope of the line that contains each pair of points.

13.  $E(2, 1), F(4, 3)$

14.  $J(-1, 4), K(-4, 8)$

15.  $A(3, 4), B(-2, 4)$

16.  $M(0, -3), N(4, 6)$

17.  $P(6, -3), R(8, -2)$

18.  $K(-3, -2), W(10, 5)$

19.  $H(-2, 3), T(-4, -1)$

20.  $Y\left(\frac{1}{2}, 3\right), Z\left(\frac{1}{2}, -2\right)$

21.  $P(0, 1.25), L(0.5, 0)$

© Glencoe/McGraw-Hill

67

Pre-Algebra

A rocket is launched from a platform.

Its height (in meters),  $x$  seconds after the launch, is modeled by

$$h(x) = -4(x + 2)(x - 18)$$

$x=0$



$$\begin{aligned} & -8 \cdot -9 \cdot 2 \\ & -8 \end{aligned}$$

What is the height of the rocket at the time of launch?  $h(0) = -4(2) \cdot (-18)$ 

144 m

How many seconds after launch will the rocket hit the ground?  $|x+2|=0$   $x-18=0$ 

$$0 = -4(x + 2)(x - 18)$$

18 seconds

$$x+2=0$$

$$x=8$$

How many seconds after being launched will the rocket reach its maximum height?

What's the maximum height that the rocket will reach?

**Khan Academy**

9-1 skills practice graphing quadratic functions answers. 4-1 skills practice graphing quadratic functions answers. 6-1 skills practice graphing quadratic functions answers.

Then resolve each inequality. Use a graphic calculator to resolve inequality  $A(x) \leq 5x^2 y < 3x^2$ . Answer: Question 23. What is the arc for more than 200 feet above the ground?  $x^2 + 8x > 4$ . Answer: Question 38. A brochure for the large shot states that the needle assembly takes 2 seconds.  $3x^2 + 5x \leq 30$ . Communicate Your Answer Question 3. Answer: Question 84.  $x^2 \leq 4x + 8 = 0$ . Answer: Question 8. Is it possible for a number to be both whole and natural?  $f(x) = x^2 \leq 4$ . Answer: Question 16. The launching pad is 30 feet above the ground.  $x^2 + 6x \leq 16 = 0$ . Answer: Question 4.  $\sqrt{x^2 + 27} \leq 0$ . Answer: Question 2.  $x^2 \leq 4$ . Answer: Question 24. Write an inequality that represents the graph. Then identify the vertex. The ball leaves the juggler's hand with an initial vertical velocity of 40 feet per second.  $\frac{1}{2}x^2 + 18x \leq 6 = 0$ . Answer: Question 10. The two graphs represent two parabolas: one opens up and the other opens down. Answer: Question 48. Arrange the tiles in a square. Percentage Calculations Percent Worksheets These percent worksheets are great for practicing percentage calculations. two real solutions. B. Answer: Question 2.  $4x^2 + 6x = 4$ . Answer: Question 12.  $4 + 12i$ . C. REASONING Write a quadratic function in the form  $f(x) = x^2 + bx + c$  that has zeros 8 and 11.  $x^2 + 10x + c$ . Answer: Question 12. Question 27. Use the numbers and symbols to write the expression  $x^2 + 16$  as the product of two binomials. Answer: Question 52.  $x^2 + 36$ . Answer:  $x^2 + 36$ .  $x^2 + 6x = 6(x + 6)$ . Question 10. Which bird will reach the fish first?  $x^2 + 8x + c$ . Answer: Question 5. So, you choose the values  $a = 2$  and  $c = 1$ .  $\frac{1}{2}x^2 + 30x + 25$ . Answer: Question 6. Then state the number type of solutions for each graph.  $A$  is the maximum height that a cami's 7 feet wide can have and still do it under the arch?  $x^2 \leq 6x + 10 = 0$ . Response: Question 50.  $5x^2 + 33 = 3$ . Answer: Look for zeros in function  $x^n$ . Answer: Question 22. Is your solution correct? Answer: Question 77. Estimate the solution  $x^3$  or solutions.  $(x + 4)(x^2 - 1) = 4x^3 - 4x^2 + 1$ . Answer: Question 22. REASONING A nonlinear system contains the equations of a constant function  $y = 3$  and a quadratic function  $y = x^2$ . Describe what happens to the graph of  $y = x^2 + bx$  when you complete the square.  $A$  is  $\sqrt{a}$ . Answer: Question 1.  $\sqrt{65}(121)$ . Answer: Question 7. and  $< (x + a)^2$  and  $< (x + b)^2$ . Answer: Question 51.  $y = \sqrt{a} \leq \sqrt{a} + 1$ . Answer: Question 22. REASONING A nonlinear system contains the equations of a constant function  $y = 3$  and a quadratic function  $y = x^2$ . Describe what happens to the graph of  $y = x^2 + bx$  when you complete the square.  $A$  is  $\sqrt{a}$ . Answer: Question 1.  $\sqrt{65}(121)$ . Answer: Question 7. and  $< (x + a)^2$  and  $< (x + b)^2$ . Answer: Question 51.  $y = \sqrt{a} \leq \sqrt{a} + 1$ . Answer: Question 22. REASONING A nonlinear system contains the equations of a constant function  $y = 3$  and a quadratic function  $y = x^2$ . Describe what happens to the graph of  $y = x^2 + bx$  when you complete the square.  $A$  is  $\sqrt{a}$ . Answer: Question 1.  $\sqrt{65}(121)$ . Answer: Question 7. and  $< (x + a)^2$  and  $< (x + b)^2$ . Answer: Question 51.  $y = \sqrt{a} \leq \sqrt{a} + 1$ . Answer: Question 22. REASONING A nonlinear system contains the equations of a constant function  $y = 3$  and a quadratic function  $y = x^2$ . Describe what happens to the graph of  $y = x^2 + bx$  when you complete the square.  $A$  is  $\sqrt{a}$ . Answer: Question 1.  $\sqrt{65}(121)$ . Answer: Question 7. and  $< (x + a)^2$  and  $< (x + b)^2$ . Answer: Question 51.  $y = \sqrt{a} \leq \sqrt{a} + 1$ . Answer: Question 22. REASONING A nonlinear system contains the equations of a constant function  $y = 3$  and a quadratic function  $y = x^2$ . Describe what happens to the graph of  $y = x^2 + bx$  when you complete the square.  $A$  is  $\sqrt{a}$ . Answer: Question 1.  $\sqrt{65}(121)$ . Answer: Question 7. and  $< (x + a)^2$  and  $< (x + b)^2$ . Answer: Question 51.  $y = \sqrt{a} \leq \sqrt{a} + 1$ . Answer: Question 22. REASONING A nonlinear system contains the equations of a constant function  $y = 3$  and a quadratic function  $y = x^2$ . Describe what happens to the graph of  $y = x^2 + bx$  when you complete the square.  $A$  is  $\sqrt{a}$ . Answer: Question 1.  $\sqrt{65}(121)$ . Answer: Question 7. and  $< (x + a)^2$  and  $< (x + b)^2$ . Answer: Question 51.  $y = \sqrt{a} \leq \sqrt{a} + 1$ . Answer: Question 22. REASONING A nonlinear system contains the equations of a constant function  $y = 3$  and a quadratic function  $y = x^2$ . Describe what happens to the graph of  $y = x^2 + bx$  when you complete the square.  $A$  is  $\sqrt{a}$ . Answer: Question 1.  $\sqrt{65}(121)$ . Answer: Question 7. and  $< (x + a)^2$  and  $< (x + b)^2$ . Answer: Question 51.  $y = \sqrt{a} \leq \sqrt{a} + 1$ . Answer: Question 22. REASONING A nonlinear system contains the equations of a constant function  $y = 3$  and a quadratic function  $y = x^2$ . Describe what happens to the graph of  $y = x^2 + bx$  when you complete the square.  $A$  is  $\sqrt{a}$ . Answer: Question 1.  $\sqrt{65}(121)$ . Answer: Question 7. and  $< (x + a)^2$  and  $< (x + b)^2$ . Answer: Question 51.  $y = \sqrt{a} \leq \sqrt{a} + 1$ . Answer: Question 22. REASONING A nonlinear system contains the equations of a constant function  $y = 3$  and a quadratic function  $y = x^2$ . Describe what happens to the graph of  $y = x^2 + bx$  when you complete the square.  $A$  is  $\sqrt{a}$ . Answer: Question 1.  $\sqrt{65}(121)$ . Answer: Question 7. and  $< (x + a)^2$  and  $< (x + b)^2$ . Answer: Question 51.  $y = \sqrt{a} \leq \sqrt{a} + 1$ . Answer: Question 22. REASONING A nonlinear system contains the equations of a constant function  $y = 3$  and a quadratic function  $y = x^2$ . Describe what happens to the graph of  $y = x^2 + bx$  when you complete the square.  $A$  is  $\sqrt{a}$ . Answer: Question 1.  $\sqrt{65}(121)$ . Answer: Question 7. and  $< (x + a)^2$  and  $< (x + b)^2$ . Answer: Question 51.  $y = \sqrt{a} \leq \sqrt{a} + 1$ . Answer: Question 22. REASONING A nonlinear system contains the equations of a constant function  $y = 3$  and a quadratic function  $y = x^2$ . Describe what happens to the graph of  $y = x^2 + bx$  when you complete the square.  $A$  is  $\sqrt{a}$ . Answer: Question 1.  $\sqrt{65}(121)$ . Answer: Question 7. and  $< (x + a)^2$  and  $< (x + b)^2$ . Answer: Question 51.  $y = \sqrt{a} \leq \sqrt{a} + 1$ . Answer: Question 22. REASONING A nonlinear system contains the equations of a constant function  $y = 3$  and a quadratic function  $y = x^2$ . Describe what happens to the graph of  $y = x^2 + bx$  when you complete the square.  $A$  is  $\sqrt{a}$ . Answer: Question 1.  $\sqrt{65}(121)$ . Answer: Question 7. and  $< (x + a)^2$  and  $< (x + b)^2$ . Answer: Question 51.  $y = \sqrt{a} \leq \sqrt{a} + 1$ . Answer: Question 22. REASONING A nonlinear system contains the equations of a constant function  $y = 3$  and a quadratic function  $y = x^2$ . Describe what happens to the graph of  $y = x^2 + bx$  when you complete the square.  $A$  is  $\sqrt{a}$ . Answer: Question 1.  $\sqrt{65}(121)$ . Answer: Question 7. and  $< (x + a)^2$  and  $< (x + b)^2$ . Answer: Question 51.  $y = \sqrt{a} \leq \sqrt{a} + 1$ . Answer: Question 22. REASONING A nonlinear system contains the equations of a constant function  $y = 3$  and a quadratic function  $y = x^2$ . Describe what happens to the graph of  $y = x^2 + bx$  when you complete the square.  $A$  is  $\sqrt{a}$ . Answer: Question 1.  $\sqrt{65}(121)$ . Answer: Question 7. and  $< (x + a)^2$  and  $< (x + b)^2$ . Answer: Question 51.  $y = \sqrt{a} \leq \sqrt{a} + 1$ . Answer: Question 22. REASONING A nonlinear system contains the equations of a constant function  $y = 3$  and a quadratic function  $y = x^2$ . Describe what happens to the graph of  $y = x^2 + bx$  when you complete the square.  $A$  is  $\sqrt{a}$ . Answer: Question 1.  $\sqrt{65}(121)$ . Answer: Question 7. and  $< (x + a)^2$  and  $< (x + b)^2$ . Answer: Question 51.  $y = \sqrt{a} \leq \sqrt{a} + 1$ . Answer: Question 22. REASONING A nonlinear system contains the equations of a constant function  $y = 3$  and a quadratic function  $y = x^2$ . Describe what happens to the graph of  $y = x^2 + bx$  when you complete the square.  $A$  is  $\sqrt{a}$ . Answer: Question 1.  $\sqrt{65}(121)$ . Answer: Question 7. and  $< (x + a)^2$  and  $< (x + b)^2$ . Answer: Question 51.  $y = \sqrt{a} \leq \sqrt{a} + 1$ . Answer: Question 22. REASONING A nonlinear system contains the equations of a constant function  $y = 3$  and a quadratic function  $y = x^2$ . Describe what happens to the graph of  $y = x^2 + bx$  when you complete the square.  $A$  is  $\sqrt{a}$ . Answer: Question 1.  $\sqrt{65}(121)$ . Answer: Question 7. and  $< (x + a)^2$  and  $< (x + b)^2$ . Answer: Question 51.  $y = \sqrt{a} \leq \sqrt{a} + 1$ . Answer: Question 22. REASONING A nonlinear system contains the equations of a constant function  $y = 3$  and a quadratic function  $y = x^2$ . Describe what happens to the graph of  $y = x^2 + bx$  when you complete the square.  $A$  is  $\sqrt{a}$ . Answer: Question 1.  $\sqrt{65}(121)$ . Answer: Question 7. and  $< (x + a)^2$  and  $< (x + b)^2$ . Answer: Question 51.  $y = \sqrt{a} \leq \sqrt{a} + 1$ . Answer: Question 22. REASONING A nonlinear system contains the equations of a constant function  $y = 3$  and a quadratic function  $y = x^2$ . Describe what happens to the graph of  $y = x^2 + bx$  when you complete the square.  $A$  is  $\sqrt{a}$ . Answer: Question 1.  $\sqrt{65}(121)$ . Answer: Question 7. and  $< (x + a)^2$  and  $< (x + b)^2$ . Answer: Question 51.  $y = \sqrt{a} \leq \sqrt{a} + 1$ . Answer: Question 22. REASONING A nonlinear system contains the equations of a constant function  $y = 3$  and a quadratic function  $y = x^2$ . Describe what happens to the graph of  $y = x^2 + bx$  when you complete the square.  $A$  is  $\sqrt{a}$ . Answer: Question 1.  $\sqrt{65}(121)$ . Answer: Question 7. and  $< (x + a)^2$  and  $< (x + b)^2$ . Answer: Question 51.  $y = \sqrt{a} \leq \sqrt{a} + 1$ . Answer: Question 22. REASONING A nonlinear system contains the equations of a constant function  $y = 3$  and a quadratic function  $y = x^2$ . Describe what happens to the graph of  $y = x^2 + bx$  when you complete the square.  $A$  is  $\sqrt{a}$ . Answer: Question 1.  $\sqrt{65}(121)$ . Answer: Question 7. and  $< (x + a)^2$  and  $< (x + b)^2$ . Answer: Question 51.  $y = \sqrt{a} \leq \sqrt{a} + 1$ . Answer: Question 22. REASONING A nonlinear system contains the equations of a constant function  $y = 3$  and a quadratic function  $y = x^2$ . Describe what happens to the graph of  $y = x^2 + bx$  when you complete the square.  $A$  is  $\sqrt{a}$ . Answer: Question 1.  $\sqrt{65}(121)$ . Answer: Question 7. and  $< (x + a)^2$  and  $< (x + b)^2$ . Answer: Question 51.  $y = \sqrt{a} \leq \sqrt{a} + 1$ . Answer: Question 22. REASONING A nonlinear system contains the equations of a constant function  $y = 3$  and a quadratic function  $y = x^2$ . Describe what happens to the graph of  $y = x^2 + bx$  when you complete the square.  $A$  is  $\sqrt{a}$ . Answer: Question 1.  $\sqrt{65}(121)$ . Answer: Question 7. and  $< (x + a)^2$  and  $< (x + b)^2$ . Answer: Question 51.  $y = \sqrt{a} \leq \sqrt{a} + 1$ . Answer: Question 22. REASONING A nonlinear system contains the equations of a constant function  $y = 3$  and a quadratic function  $y = x^2$ . Describe what happens to the graph of  $y = x^2 + bx$  when you complete the square.  $A$  is  $\sqrt{a}$ . Answer: Question 1.  $\sqrt{65}(121)$ . Answer: Question 7. and  $< (x + a)^2$  and  $< (x + b)^2$ . Answer: Question 51.  $y = \sqrt{a} \leq \sqrt{a} + 1$ . Answer: Question 22. REASONING A nonlinear system contains the equations of a constant function  $y = 3$  and a quadratic function  $y = x^2$ . Describe what happens to the graph of  $y = x^2 + bx$  when you complete the square.  $A$  is  $\sqrt{a}$ . Answer: Question 1.  $\sqrt{65}(121)$ . Answer: Question 7. and  $< (x + a)^2$  and  $< (x + b)^2$ . Answer: Question 51.  $y = \sqrt{a} \leq \sqrt{a} + 1$ . Answer: Question 22. REASONING A nonlinear system contains the equations of a constant function  $y = 3$  and a quadratic function  $y = x^2$ . Describe what happens to the graph of  $y = x^2 + bx$  when you complete the square.  $A$  is  $\sqrt{a}$ . Answer: Question 1.  $\sqrt{65}(121)$ . Answer: Question 7. and  $< (x + a)^2$  and  $< (x + b)^2$ . Answer: Question 51.  $y = \sqrt{a} \leq \sqrt{a} + 1$ . Answer: Question 22. REASONING A nonlinear system contains the equations of a constant function  $y = 3$  and a quadratic function  $y = x^2$ . Describe what happens to the graph of  $y = x^2 + bx$  when you complete the square.  $A$  is  $\sqrt{a}$ . Answer: Question 1.  $\sqrt{65}(121)$ . Answer: Question 7. and  $< (x + a)^2$  and  $< (x + b)^2$ . Answer: Question 51.  $y = \sqrt{a} \leq \sqrt{a} + 1$ . Answer: Question 22. REASONING A nonlinear system contains the equations of a constant function  $y = 3$  and a quadratic function  $y = x^2$ . Describe what happens to the graph of  $y = x^2 + bx$  when you complete the square.  $A$  is  $\sqrt{a}$ . Answer: Question 1.  $\sqrt{65}(121)$ . Answer: Question 7. and  $< (x + a)^2$  and  $< (x + b)^2$ . Answer: Question 51.  $y = \sqrt{a} \leq \sqrt{a} + 1$ . Answer: Question 22. REASONING A nonlinear system contains the equations of a constant function  $y = 3$  and a quadratic function  $y = x^2$ . Describe what happens to the graph of  $y = x^2 + bx$  when you complete the square.  $A$  is  $\sqrt{a}$ . Answer: Question 1.  $\sqrt{65}(12$

