Name: _____

11.1.D1 – QUADRATIC FUNCTIONS

Past due on: _____ Period: _____

Use the distributive property to write each quadratic function in standard form. *Refer to the 11.1 example "Writing Quadratic Functions in Standard Form" in the Chapter 11 Summary.*

1. $f(x) = x(x + 4) - 2$

2. $g(n) = 3n(n - 8) + 5$

3. $h(t) = (20 + 3t)t$

Decide whether each function has an absolute minimum or an absolute maximum.

4. $f(x) = -4x^2$

5. $g(x) = \dfrac{1}{2}x^2 - 4x + 1$

6. $h(x) = -5x + 2x^2$

Write an expression that represents the length in terms of the width, x. Then write a quadratic function in standard form that represents the area, A, as a function of the width. *Refer to the 11.1 example "Writing Quadratic Functions in Standard Form" in the Chapter 11 Summary.*

7. Aiko is enclosing a new rectangular flower garden with a rabbit garden fence. She has 40 feet of fencing.

   If x = the width, then the length = _____ & the area, A = _____

8. Nelson is building a rectangular ice rink for the community park. The materials available limit the perimeter of the ice rink to at most 250 feet.

   If x = the width, then the length = _____ & the area, A = _____

9. Pedro is building a rectangular sandbox for the community park. The materials available limit the perimeter of the sandbox to at most 100 feet.

   If x = the width, then the length = _____ & the area, A = _____
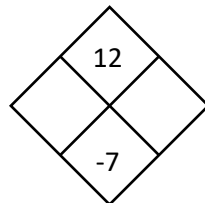
An X-box is a pattern for which the product of two numbers is placed on top, while the sum of the same two numbers is placed on the bottom. This pattern is demonstrated in the X-box at right. Copy and complete each X-box pattern below.
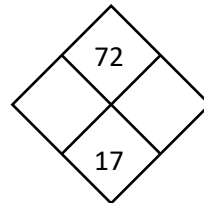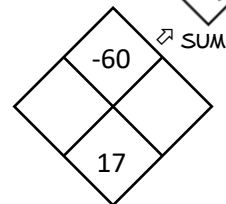
PRODUCT ↘

	xy	
x		y
	$x+y$	

↗ SUM

10.

-80

2

11.

12

-7

12.

72

17

13.

-60

17
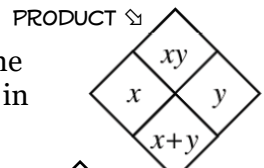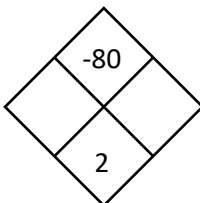
1ST SEMESTER SPIRAL REVIEW

Write a function that represents the balance in the account as a function of time, t, **and** determine the account balance after 10 years. *Refer to the "Sequences table" on your 1st semester summary card.*

14. Reba deposits $1500 into a **simple interest** account. The interest rate for the account is 2.8%.

15. Raul deposits $800 into a **compound interest** account. The interest rate for the account is 4.1%.

Write an exponential function that represents each population as a function of time **and** determine the population after 8 years. *Refer to the "Exponential Functions" section on your 1st semester summary card.*

16. Lindenhurst has a population of 27,000. Its population is decreasing at a rate of 3.5% every year.

17. Fox Lake has a population of 12,000. Its population is increasing at a rate of 5.4% every year.

Solve each system of equations using the appropriate method. Write your solution as an ordered pair: (x, y). *Refer to the "Systems of Equations" section on your 1st semester summary card.*

18.
$$6x - 4y = 24$$
$$y = 2x + 8$$

19.
$$3x - 9y = 36$$
$$x + 3y = 18$$

First use point-slope form to write the equation of a line that passes through the given point and has the given slope. Then write the equation in slope-intercept form. *Refer to the "Linear Functions" section on your 1st semester summary card.*

20. $(-1, 7), m = -4$

21. $(-2, 3), m = \dfrac{1}{2}$

Unit 7, Chapter 11: Graphs of Quadratic Functions