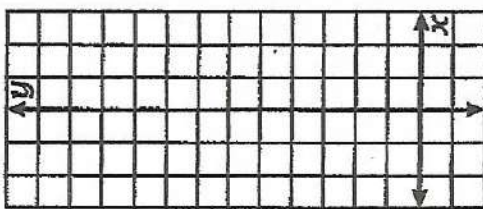# Barnett

Algebra 1
Honors

Packets 17-21

Who Is An Expert at Catching Small Green Vegetables?

Complete each table and graph. For table cells with letters, write the letter in the corresponding box at the right.

2	5	−3	−1	0	12	9	1	−7	−8	8	−5	6	3	7	−12	4	−2

1 $y = 3x^2$

x	y
2	
1	
0	
−1	R
−2	
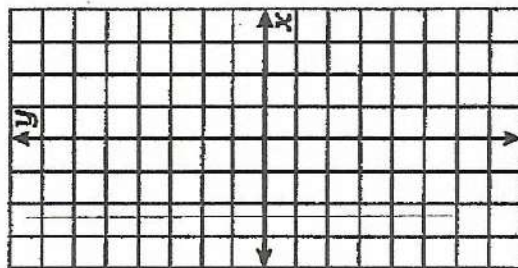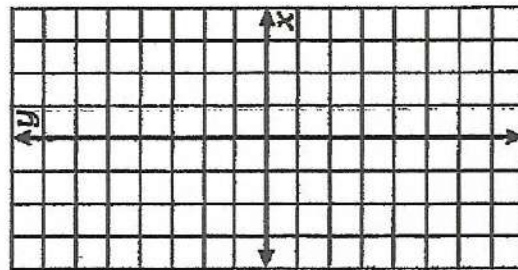
2 $y = -3x^2$

x	y
2	
1	
0	A
−1	
−2	I

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

x	y
4	
2	A
0	
−2	
−4	S

4 $y = -\frac{1}{2}x^2$

x	y
4	A
2	
0	
−2	T
−4	

5 $y = x^2 - 3$

x	y
3	
2	
1	T
0	
−1	
−2	
−3	A

6 $y = x^2 + 3$

x	y
3	P
2	
1	
0	
−1	S
−2	
−3	

7 $y = 2x^2 - 1$

x	y
2	
1	P
0	
−1	
−2	T

8 $y = -2x^2 + 1$

x	y
2	E
1	
0	
−1	R
−2	
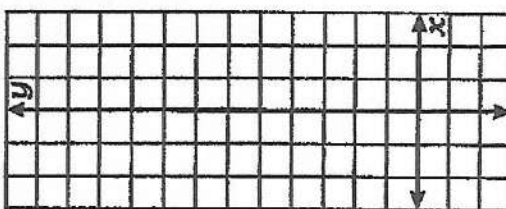
What Did Dax Do When a Roll of Tape Came Flying at Him?

Complete each table and graph and answer the questions asked about each situation. For table cells with letters, write the letter in the corresponding box at the right.

144	450	110	350	128	250	80	400

Situation #1 - Horsing Around

Pecos has 60 yd of fencing to build a rectangular corral for his horse. He already has a fence along one side of his property, and he plans to use part of this existing fence for one side of the corral. For the other three sides, he plans to use the 60 yd of fencing that he owns.
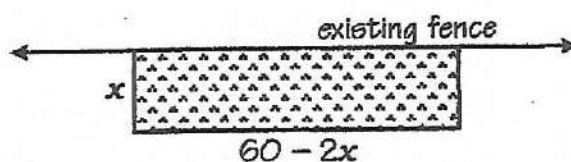
Let x be the distance that the corral extends away from the existing fence, and let A be the area of the corral.
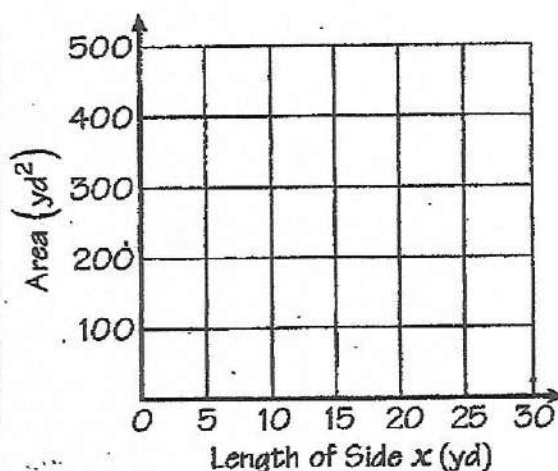
Write an equation for A in terms of x.

$$A =$$

Complete the table and graph to show how A depends on x.

What is the vertex of the graph of your equation? What is the meaning of the vertex?

existing fence

x

$60 - 2x$

x (yd)	A (yd²)
5	U
10	
15	E
20	T
25	

Situation #2 - Fired Up!

To celebrate July 4, the town of Trigon has hired Pyro Tech, Inc. to launch fireworks rockets from an 80-foot tower in the center of town. The rockets can be fired with an initial upward velocity of 64 feet per second.

Pyro Tech uses a function h(t) that estimates the rocket's height above ground in terms of the time t since the launch. If t is in seconds and h(t) is in feet, then

$$h(t) = -16t^2 + 64t + 80$$

Pyro Tech needs to know:
1. How long will it take for a rocket to reach its highest point?
2. How high will the rocket go?
3. How long after the launch will the rocket debris hit the ground?

Use the function h(t) to complete the table and graph. Then find answers for the three questions above. Why do the numbers "64" and "80" appear in the function? Does your graph show the flight path of the rocket?

80 ft

t (s)	h (ft)
0	
1	D
2	H
3	
4	C
5	
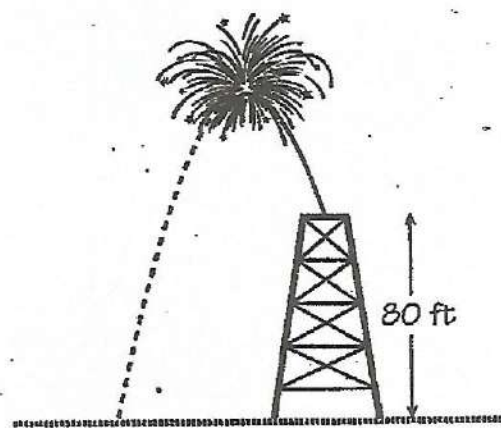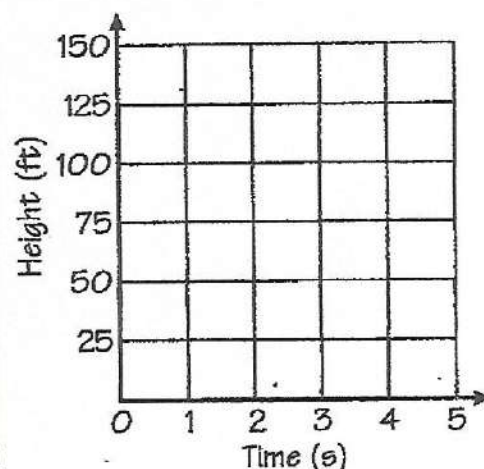
Instructional Packet # 19

Graphing Quadratic Functions in Vertex Form using Transformations

1. Watch the instructional video that I have created. It should be in a message in Livegrades.

2. Complete the problems that are at the end of the video.

   If needed —
3. Search for the topic and find another video that provides instruction and/or examples. Watch that video.

4. Message me with questions.

5. You will not submit anything for this packet.

Set D Equations in Vertex Form

$y = 4(x-1)^2$	$y = x^2 + 3$	$y = (x+1)^2 + 2$	$y = -2(x-1)^2 + 3$
$y = -x^2$	$y = -x^2 + 3$	$y = (x-3)^2$	$y = \frac{1}{2} x^2$
$y = 2x^2$	$y = -x^2 - 3$	$y = (x+3)^2$	$y = -(x+3)^2$
$y = x^2 - 3$	$y = 2(x-1)^2 - 2$	$y = -2(x+4)^2 - 1$	$y = x^2$

Find the graph that matches the equation.
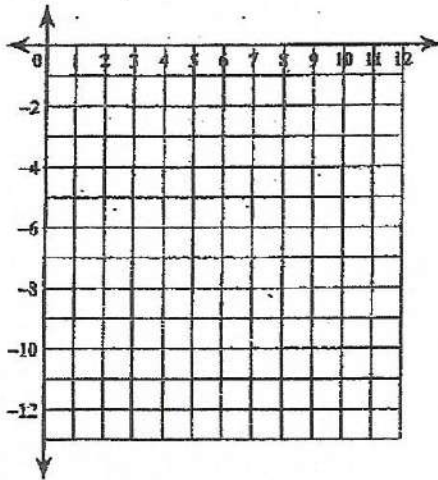Write the graph number in the equation box.

Set D: Graph Quadratic Equations with a = anything
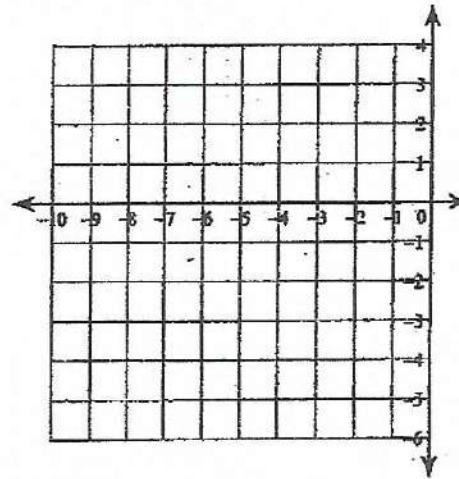

  4

Name_____
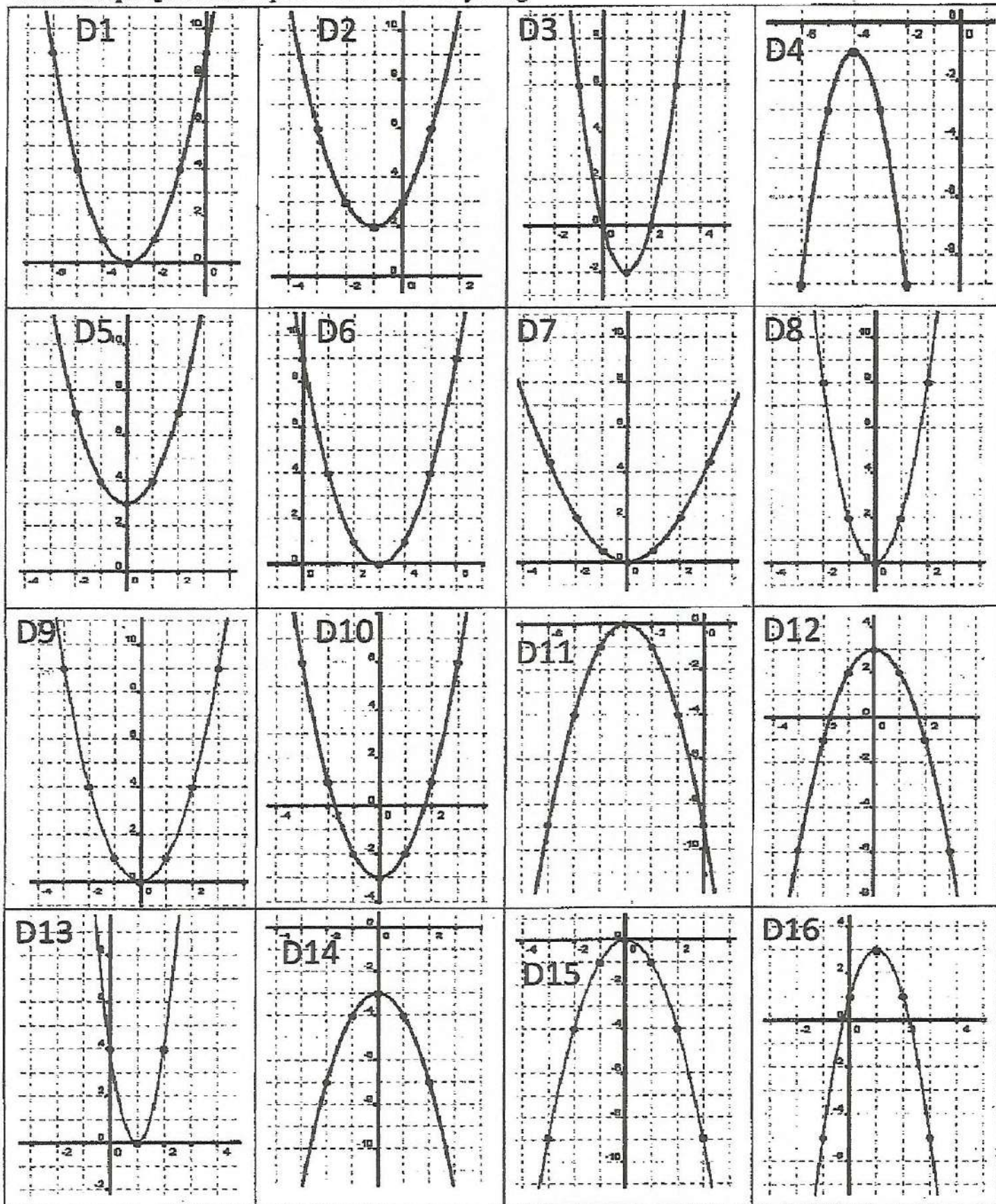
Graphing Quadratic Functions/Vertex Form
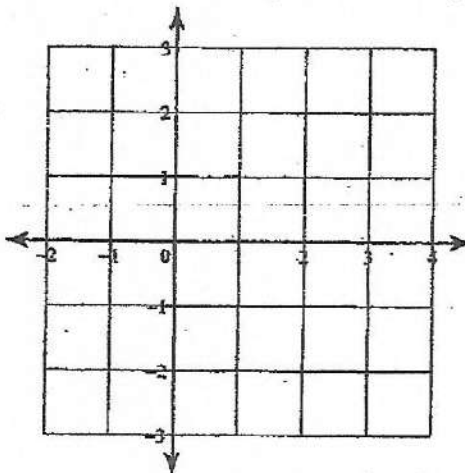
Date_____

Sketch the graph of each function.
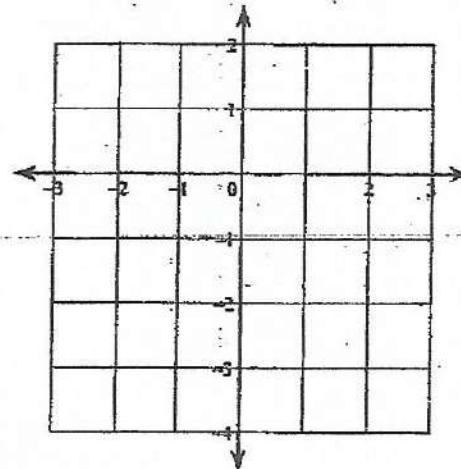
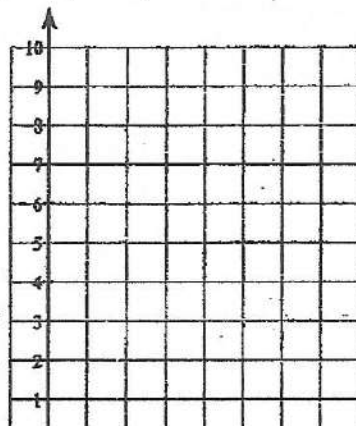1) $y = -2(x-3)^2 - 4$

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

3) $y = \frac{1}{2}(x-2)^2 - 1$

4) $y = -(x+1)^2 + 1$

5) $y = 2(x-4)^2 + 1$

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