

Student: \_\_\_\_\_  
Date: \_\_\_\_\_  
Time: \_\_\_\_\_

Instructor: klecenda fort  
Course: Group 2  
Book: \*Connected Mathematics 3  
(Grades 6-8)

Assignment: Homework 14

15

1. A farmer has 1500 feet of fencing available to enclose a rectangular area bordering a river. If no fencing is required along the river, find the dimensions of the fence that will maximize the area. What is the maximum area?

Find the dimensions of the fence that will maximize the area.

Width =  feet      Length =  feet

The maximum area is  square feet.

2. Jim wants to build a rectangular parking lot along a busy street but only has 1,000 feet of fencing available. If no fencing is required along the street, find the maximum area of the parking lot.

What is the maximum area of the parking lot?

square feet

3.  $Y_1$  is defined as a quadratic function. Determine the coordinates of the vertex of the graph, maximum or minimum point and value, and the range of the function.

The coordinates of the vertex are

.

(Type an ordered pair.)

Is the vertex a maximum or minimum point?

maximum point

minimum point

The minimum value of the function is

.

Choose the range of the function.

$(-4, \infty)$

$[-4, \infty)$

$[4, -4)$

$(0, -4)$

X	$Y_1$	
1	5	
2	0	
3	-3	
4	-4	
5	-3	
6	0	
7	5	
$X = 1$		

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4.  $Y_1$  is defined as a quadratic function. Determine the coordinates of the vertex of the graph, maximum or minimum point and value, and the range of the function.

The coordinates of the vertex are

(Type an ordered pair.)

Is the vertex a maximum or minimum point?

maximum point

minimum point

The maximum value of the function is

Choose the range of the function.

$[8,36)$

$(-\infty,36)$

$(0,36)$

$(-\infty,36]$

X	$Y_1$	
5	27	
6	32	
7	35	
8	36	
9	35	
10	32	
11	27	
$X = 5$		

5. Determine if the parabola whose equation is given opens upward or downward.

$$y = 2x^2 - 5x + 1$$

Does the parabola open upward or downward?

downward

upward

6. Determine whether the parabola with the equation  $y = -5x^2 + 3x - 3$  opens upward or downward.

Upward

Downward

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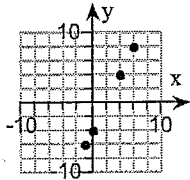
Assignment: Homework 14

7. Graph the set of points. Which model is most appropriate for the set?

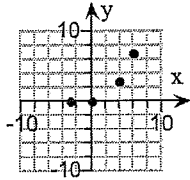
$$(-1, -6), (0, -4), (4, 4), (6, 8)$$

Graph the points. Choose the correct graph below.

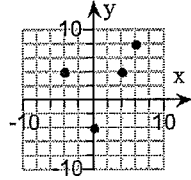
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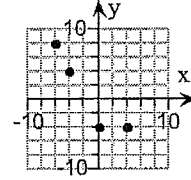
B



C



D



Which model is most appropriate for the set?

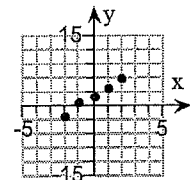
- Quadratic model
- Linear model
- None
- Exponential model

8. Graph the set of points. Which model is most appropriate for the set?

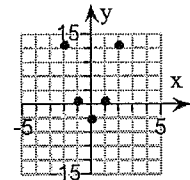
$$(-2, 13), (-1, 1), (0, -3), (1, 1), (2, 13)$$

Graph the points. Choose the correct graph below.

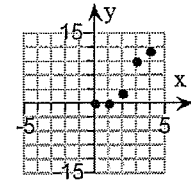
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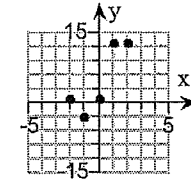
B



C



D



Which model is most appropriate for the set?

- Exponential model
- Quadratic model
- Linear model
- None

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9. Which type of function best models the data in the table? Use differences or ratios.

x	y
0	0
1	6.5
2	26
3	58.5
4	104

Choose the correct answer below.

- Exponential model  
 Linear model  
 None  
 Quadratic model

10. Find the quadratic equation that fits the following set of data points. Write the equation in the form  $y = ax^2 + bx + c$ .

x	y
1	8
3	64
4	107

$y = \square$  (Simplify your answer.)