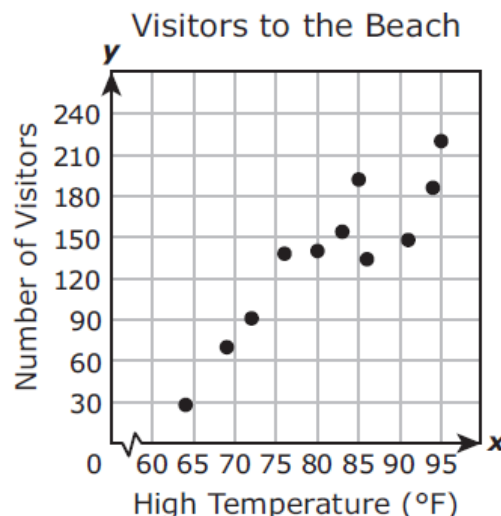


REVIEW: SCATTERPLOTS & REGRESSIONS

1) The scatterplot shows the number of visitors to a beach each day and the high temperature in degrees Fahrenheit for that day.



- a) What type of correlation is represented on the graph?
- b) How many visitors were at the beach when the high temperature was 80°F?
- c) When did the number of visitors at the beach exceed 210 people?
- d) Draw a trend line, and predict the number of visitors when the high temperature is 100°F.
- e) The calculator determines that the line of best fit for this data is $y = 5.11x - 277.95$. Using this equation, predict the number of visitors when the high temperature is 100°F.
- f) Based on this scatterplot, which statement appears to be true?
 - A. There is a nonlinear correlation between the high temperature and the number of visitors to the beach.
 - B. When the high temperature is above 100°F, fewer than 150 visitors are expected at the beach.
 - C. There is no correlation between the high temperature and the number of visitors to the beach.
 - D. When the high temperature is between 75°F and 90°F, more than 120 visitors are expected at the beach.

2) The table shows some ordered pairs that belong to a quadratic function f .

- a) Equation: _____
- b) Vertex: _____ Axis of symmetry: _____
- c) Domain: _____ Range: _____
- d) $f(-2) =$ _____
- e) What is the parent function of f ? _____

x	f(x)
1	-4
2	1
3	4
6	1
8	-11

3) The table represents some points on the graph of a linear function.

a) Equation: _____

b) Slope: _____ y-intercept: _____

c) Domain: _____ Range: _____

d) What is the value of x when y = 10.5? _____

x	-5	0	1
y	2.5	-7.5	-9.5

Determine the type of function and the equation of each function.

4)

x	y
-1	1.5
1	6
2	12
3	24

Lin / Quad / Exp

y = _____

5) Includes the points (-3, -5), (1, -1), (2, 5), and (4, 23)

Lin / Quad / Exp

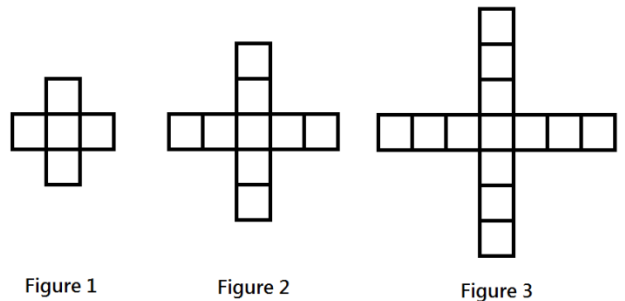
y = _____

Answer the following.

6) The first three figures of a pattern are shown below.

a) Write an expression that can be used to find how many squares are in the n^{th} figure.

b) How many squares are in the 50th figure?



7) The first 4 terms in a pattern are shown below.

12, 21, 36, 57, ...

If this pattern continues what expression can be used to find the n^{th} term?

A. $3n + 9$

C. $3(n^2 + 3)$

B. $3^n + 9$

D. $3n^2 + 9n$

A study compared the speed x , in miles per hour and the average fuel economy y (in miles per gallon) for cars. The results are shown in the table. Use this table to answer questions 8-10.

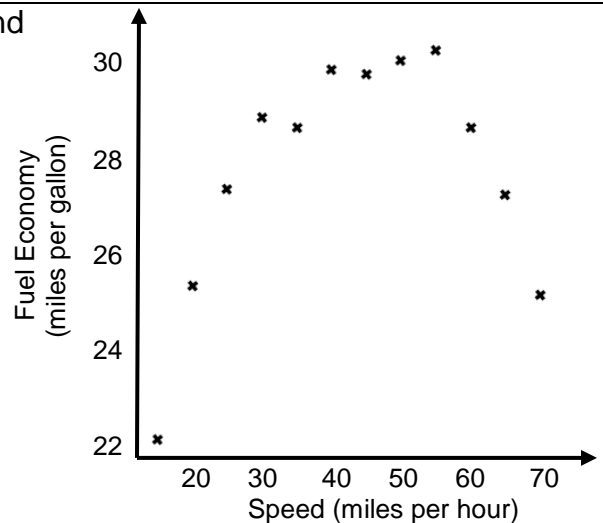
Speed, x	15	20	25	30	35	40	45	50	55	60	65	70
Fuel Economy, y	22.3	25.5	27.5	29	28.8	30	29.9	30.2	30.4	28.8	27.4	25.3

8) Which of the following statements can be concluded from the data?

- A. As speed increases, the fuel economy of a car remains constant.
- B. As speed increases, the fuel economy of a car increases until a certain speed is reached and then decreases.
- C. As speed decreases, the fuel economy of a car increases.
- D. The maximum fuel economy achieved is 30 miles per gallon.

9) A scatterplot of the same data is shown. Which shape and function type would best fit the data?

- A. Line; Linear function
- B. Parabola; Quadratic function
- C. Exponential Curve; Exponential function
- D. None of these



10) Using regression in the calculator, determine the approximate fuel economy of a car when its speed is 75 miles per hour.

11) The points in the table below represent five points found on a scatterplot.

x	10	20	30	40	50
y	625	505	430	302	198

- a) What type of correlation does the data in the table show?
- b) As the value of x increases, the value of y _____.

Review. Show all work.

12) The senior classes at High School A and High School B planned separate trips to New York City. The senior class at High School A rented and filled 1 van and 6 buses with 372 students. High School B rented and filled 4 vans and 12 buses with 780 students. Each van and each bus carried the same number of students.

- a) Write a system of equations that can be used to find v , the number of students a van can carry and b , the number of students a bus can carry.

Equations: _____

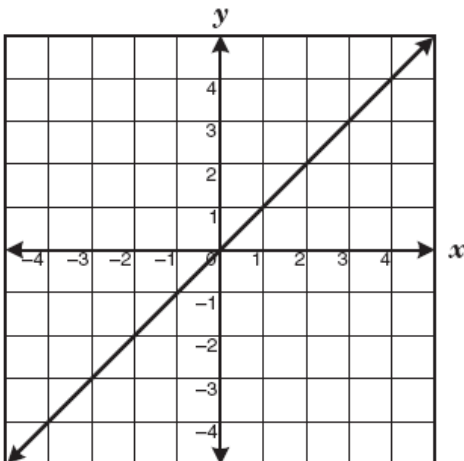
- b) How many students can a van carry?

13) The height of a flare fired from the deck of a ship in distress can be modeled by the function $h(t) = -16t^2 + 104t + 48$, where h is the height of the flare above the water and t is the time in seconds. Which of the following statements about the flight of the flare is not true?

- A. The flare begins at a height of 48 feet above water.
- B. The height of the flare at 2 seconds is 192 feet.
- C. The flare hits the water between 6 and 7 seconds.
- D. The maximum height of the flare is 208 feet.

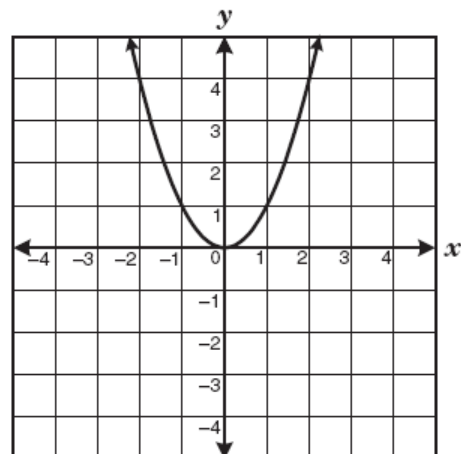
14)

LINEAR Parent Function



Equation: _____
 $m =$ _____ $b =$ _____
 Domain: _____ Range: _____

QUADRATIC Parent Function



Equation: _____
 Vertex: _____ Axis of Symmetry: _____
 Domain: _____ Range: _____

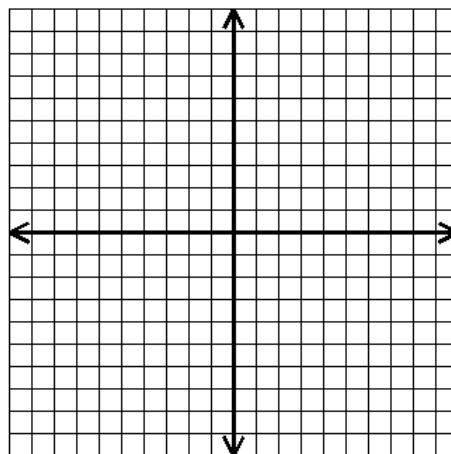
15) What is the slope and y-intercept of $8x - 2y = 14$?

m = _____

b = _____

16) A quadratic function that opens downward has an x-intercept at 2 and a vertex at (5, 8).

Where is the other x-intercept located?



17) Find the value of a that satisfies each equation.

$$5(2a + 6) = -4(-5 - 2a) + 3a$$

$$5 - (a + 1) = a + 2(a - 5)$$