

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question. (5 points)

Multiply:

- 1) $(4x - 6)(x + 6)$ 1) _____
A) $x^2 - 36x + 18$ B) $4x^2 - 31x - 36$ C) $4x^2 + 18x - 36$ D) $x^2 + 18x - 31$

Factor the trinomial into the product of two binomials.

- 2) $x^2 + 2x - 48$ 2) _____
A) $(x - 8)(x + 1)$ B) $(x + 8)(x - 6)$ C) $(x - 8)(x + 6)$ D) prime

- 3) $8x^2 + 22x + 5$ 3) _____
A) $(4x + 5)(2x - 1)$ B) $(x + 5)(8x + 1)$ C) $(2x - 5)(4x - 1)$ D) $(2x + 5)(4x + 1)$

Solve the quadratic equation, to determine all solutions of x :

- 4) $x^2 - x = 30$ 4) _____
A) $\{5, 6\}$ B) $\{1, 30\}$ C) $\{-5, 6\}$ D) $\{-5, -6\}$

- 5) $5x^2 - 4x - 9 = 0$ 5) _____
A) $\left\{\frac{5}{9}, 1\right\}$ B) $\left\{\frac{5}{9}, -1\right\}$ C) $\left\{\frac{5}{9}, 0\right\}$ D) $\left\{\frac{9}{5}, -1\right\}$

- 6) $x^2 + 10x + 10 = 0$ 6) _____
A) $\{-10 + \sqrt{10}\}$ B) $\{5 + \sqrt{15}\}$
C) $\{5 - \sqrt{10}, 5 + \sqrt{10}\}$ D) $\{-5 - \sqrt{15}, -5 + \sqrt{15}\}$

Solve the system by any method. Be sure to check all proposed solutions.

7) $x + 2y = -6$

7) _____

$3x + 2y = 2$

A) $\{(4, -5)\}$

B) $\{(5, 4)\}$

C) $\{(5, -6)\}$

D) \emptyset

8) $x + 2y = 68$

8) _____

$y = 4x + 7$

A) $\{(7, 35)\}$

B) $\{(6, 31)\}$

C) $\{(5, 27)\}$

D) $\{(-6, -17)\}$

Calculate the slope of the line passing through the given points. If the slope is undefined, so state. Then indicate whether the line rises, falls, is horizontal, or is vertical.

9) $(-3, 5), (-5, -8)$

9) _____

A) $-\frac{8}{3}$, falls

B) $\frac{13}{2}$, rises

C) $\frac{2}{13}$, rises

D) $-\frac{3}{8}$, falls

Solve the problem.

10) Jarod is having a problem with rabbits getting into his vegetable garden, so he decides to fence it in.

10) _____

The length of the garden is 5 feet more than 4 times the width. He needs 70 feet of fencing to do the job. Find the length and width of the garden.

A) length: 57 ft; width: 13 ft

B) length: 25 ft; width: 5 ft

C) length: 33 ft; width: 7 ft

D) length: 29 ft; width: 6 ft

Evaluate the function at the given values of the variable.

11) $f(x) = 2x - 5$ a. $f(8)$ b. $f(4)$

11) _____

A) 21, 13

B) 11, 3

C) -80, -40

D) 80, 40

12) $f(x) = 7x^2 + 6x + 3$ a. $f(1)$ b. $f(-4)$

12) _____

A) 252, 4032

B) 58, 763

C) 16, 91

D) 23, -77

Solve the problem. Use a calculator with an LOG key.

- 13) An earthquake was recorded with an intensity which was 158,489 times more powerful than a reference level earthquake, or $158,489 \cdot I_0$. What is the magnitude of this earthquake on the Richter scale (rounded to the nearest tenth)? The magnitude on the Richter scale of an earthquake of intensity I is $\log_{10} \frac{I}{I_0}$. 13) _____

A) 0.5

B) 4.2

C) 12.0

D) 5.2

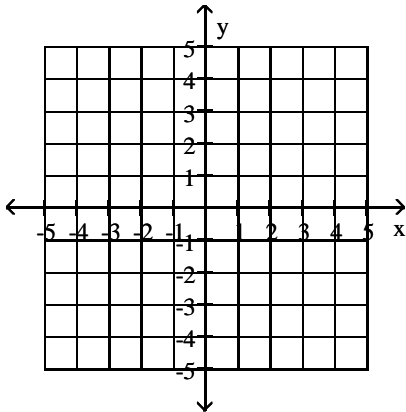
Solve the problem.

- 14) At Rhonda's diner, three loaded baked potatoes and three cheeseburgers provide 3150 calories. One loaded baked potato and five cheeseburgers provide 3050 calories. Find the calorie content of each item. 14) _____
- A) A loaded baked potato has 550 calories, and a cheeseburger has 500 calories.
 B) A loaded baked potato has 590 calories, and a cheeseburger has 460 calories.
 C) A loaded baked potato has 560 calories, and a cheeseburger has 490 calories.
 D) A loaded baked potato has 530 calories, and a cheeseburger has 520 calories.

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Graph the equation (3 points) and write its slope on line to right. (3 points).

- 15) $y = \frac{1}{6}x - 2$ 15) _____



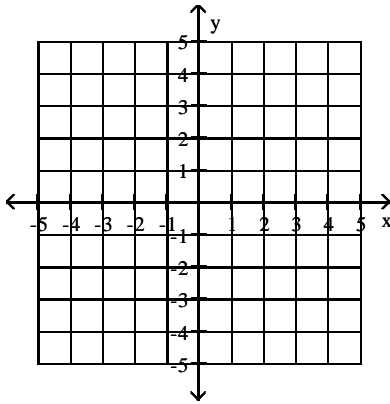
Solve the problem.

- 16) Linda needs to have her car towed. Little Town Auto charges a flat fee of \$80 plus \$3 per mile towed. 16) _____
- (a) Write a function expressing Linda's towing cost, c , in terms of miles towed, x . (3 points)
- (b) Find the cost of having a car towed 9 miles and write answer on line to right. (3 points)

Graph the equation (3 points) and write its slope on line to right. (3 points).

17) $2x - 4y = 6$

17) _____

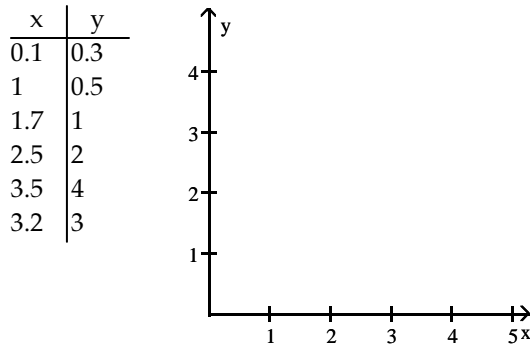


First, create a scatter plot for the data in the table. (3 points)

Then, use the shape of the scatter plot to determine if the data are best modeled by a linear function, an exponential function, a logarithmic function, or a quadratic function. Write the type of function on line to right.

18)

18) _____



Solve the problem.

19) Fireworks are launched into the air. The quadratic function $y = -20x^2 + 220x + 5$ models the fireworks' height, y , in feet, x seconds after they are launched.

19) _____

How many seconds after launch should the fireworks explode so that they go off at the greatest height? (3 points)

What is this maximum height and write your answer on line to right? (3 points)

Answer Key

Testname: MATH103_EXAM2_2013S1

1) C

ID: TM5B 6.5.1-2+
Diff: 0 Points: 1

2) B

ID: TM5B 6.5.2-2+
Diff: 0 Points: 1

3) D

ID: TM5B 6.5.2-7+
Diff: 0 Points: 1

4) C

ID: TM5B 6.5.3-3+
Diff: 0 Points: 1

5) D

ID: TM5B 6.5.3-5+
Diff: 0 Points: 1

6) D

ID: TM5B 6.5.4-8+
Diff: 0 Points: 1

7) A

ID: TM5B 7.3.4-2+
Diff: 0 Points: 1

8) B

ID: TM5B 7.3.3-4+
Diff: 0 Points: 1

9) B

ID: TM5B 7.2.2-6+
Diff: 0 Points: 1

10) D

ID: TM5B 7.3.6-18+
Diff: 0 Points: 1

11) B

ID: TM5B 7.1.3-2+
Diff: 0 Points: 1

12) C

ID: TM5B 7.1.3-5+
Diff: 0 Points: 1

13) D

ID: TM5B 7.6.4-6+
Diff: 0 Points: 1

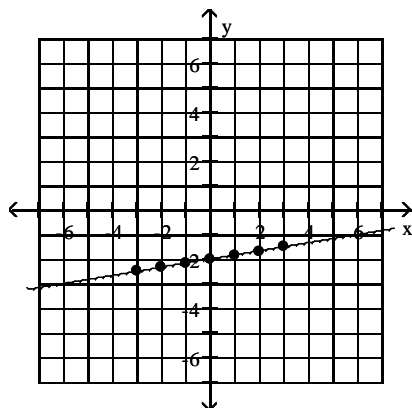
14) A

ID: TM5B 7.3.6-11+
Diff: 0 Points: 1

Answer Key

Testname: MATH103_EXAM2_2013S1

15)

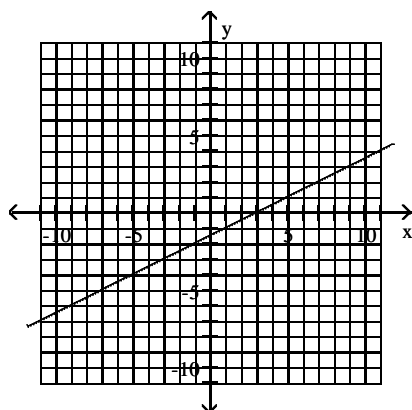


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16) $c(x) = 3x + 80$;
\$107

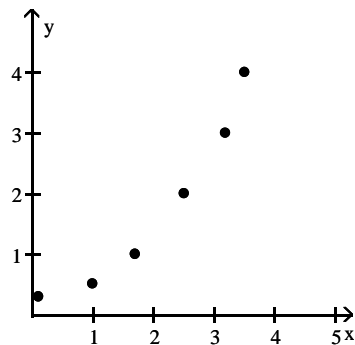
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Diff: 0 Points: 1

17)



ID: TM5B 7.2.1-2+
Diff: 0 Points: 1

18)



exponential function

ID: TM5B 7.6.7-2+
Diff: 0 Points: 6

Answer Key

Testname: MATH103_EXAM2_2013S1

19) 5.5 sec, 610 ft

ID: TM5B 7.6.6-1+

Diff: 0 Points: 6

- 1) _____
- 2) _____
- 3) _____
- 4) _____
- 5) _____
- 6) _____
- 7) _____
- 8) _____
- 9) _____
- 10) _____
- 11) _____
- 12) _____
- 13) _____
- 14) _____
- 15) _____

16) _____

17) _____

18) _____

19) _____