

NAME _____

DATE _____

PERIOD _____

Unit 5: Practice Mid-Unit Assessment

1. Multiple Response

Select **all** the functions whose graphs include the point (12,3).

A. $y = 4x$

B. $y = x^4$

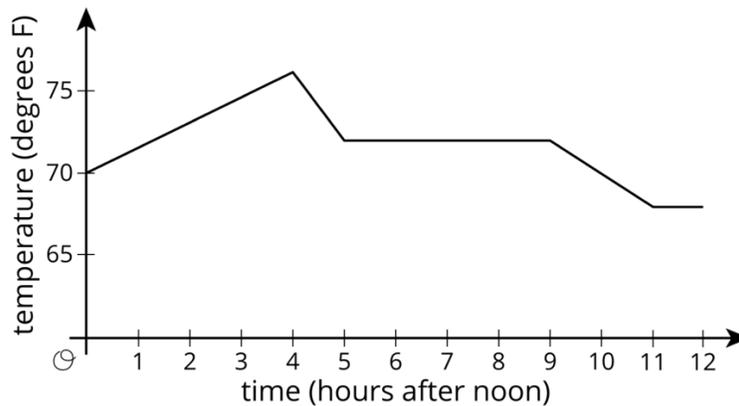
C. $y = x + (-9)$

D. $y = x + 9$

E. $y = \frac{1}{4}x$

2. Multiple Response

This graph shows the temperature in Diego's house between noon and midnight one day.



Select **all** true statements. (If the statement is false, describe why it is not a valid statement)

- A. Time is a function of temperature.
- B. Temperature is a function of time.
- C. The lowest temperature occurred between 11:00 and 12:00
- D. The temperature was increasing between 5:00 and 9:00.
- E. The temperature was 70 degrees twice during the 12-hour period.
- F. There was a four-hour period during which the temperature was increasing.

3. Multiple Choice. Select only one answer.

This table shows a linear relationship between the amount of water in a tank and time.

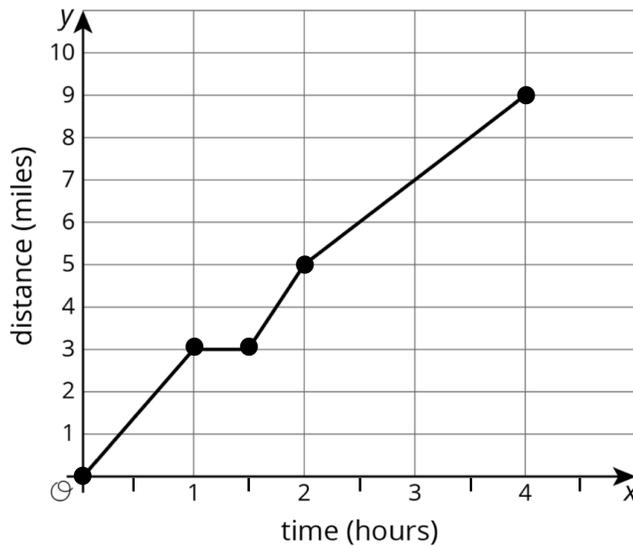
| Time (in minutes) | Water (in Gallons) |
|-------------------|--------------------|
| 0 | 48 |
| 4 | 36 |
| 8 | 24 |
| 12 | 12 |
| 16 | 0 |

Which of these statements is true?

- A. The water in the tank is increasing at a rate of 3 gallons per minute.
- B. The water in the tank is increasing at a rate of 12 gallons per minute.
- C. The water in the tank is decreasing at a rate of 3 gallons per minute.
- D. The water in the tank is decreasing at a rate of 12 gallons per minute.

4. Fill in the Numeric Grid.

Elena goes for a long walk. This graph shows her time and distance traveled throughout the walk.



What was her fastest speed, in miles per hour? _____

Which two ordered pairs did you use to determine this speed? (,) and (,)

Using the two points, what was the starting and ending distance in miles? _____

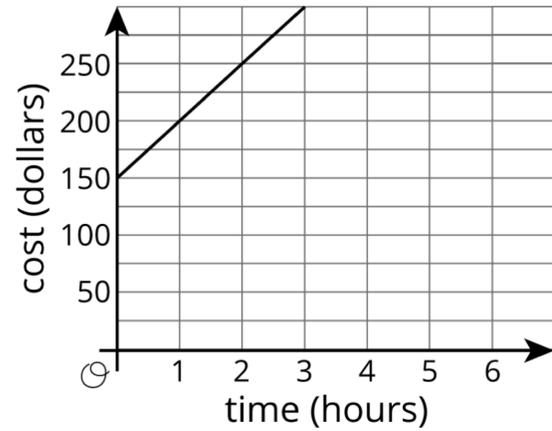
What was the total amount of time in hours between these two points? _____

5. Two plumbing companies charge money for each hour of work, plus a one-time fee.

A Plus Plumbing charges according to this partial table:

| Time (in hours) x | Cost (in dollars) y |
|---------------------|-----------------------|
| 0 | |
| 1 | \$125 |
| | |
| 3 | \$275 |
| | |
| | |
| 6 | \$500 |

Quality Plumbing charges according to this graph:



a. **Multiple Choice. Select only one answer.**

How much does *A Plus Plumbing* cost for each hour of work?

- A. \$0 B. \$50 C. \$75 D. \$125

b. **Multiple Choice. Select only one answer.**

What is the *A Plus Plumbing* one-time fee?

- A. \$0 B. \$50 C. \$75 D. \$125

c. **Multiple Choice. Select only one answer.**

How much does *Quality Plumbing* charge for each hour of work?

- A. \$50 B. \$100 C. \$150 D. \$200

d. **Multiple Choice. Select only one answer.**

What is the *Quality Plumbing* one-time fee?

- A. \$50 B. \$100 C. \$150 D. \$200

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PRACTICE for Unit 5: Mid-Unit Assessment

1. Select **all** the functions whose graphs include the point (25,5).

A. $y = \frac{1}{5}x$

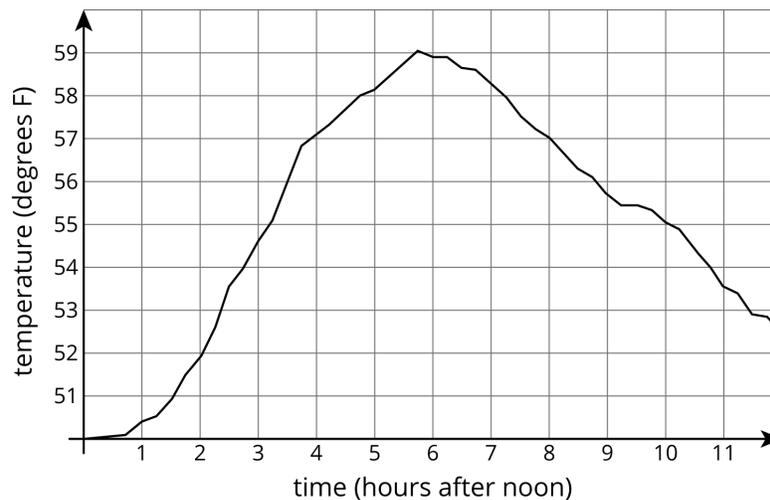
B. $y = x + 20$

C. $y = x^2$

D. $y = x - 20$

E. $y = 5x$

2. The graph shows the temperature between noon and midnight in one day in a certain city.



- A. Was it warmer at 3:00 p.m. or 9:00 p.m.?
- B. Approximately when was the temperature highest?
- C. Find another time that the temperature was the same as it was at 4:00 p.m.
- D. Did the temperature change more between 1:00 p.m. and 3:00 p.m. or between 3:00 p.m. and 5:00 p.m.?
- E. Does this graph show that temperature is a function of time, or time is a function of temperature?
- F. When the input for the function is 8, what is the output? What does that tell you about the time and temperature?

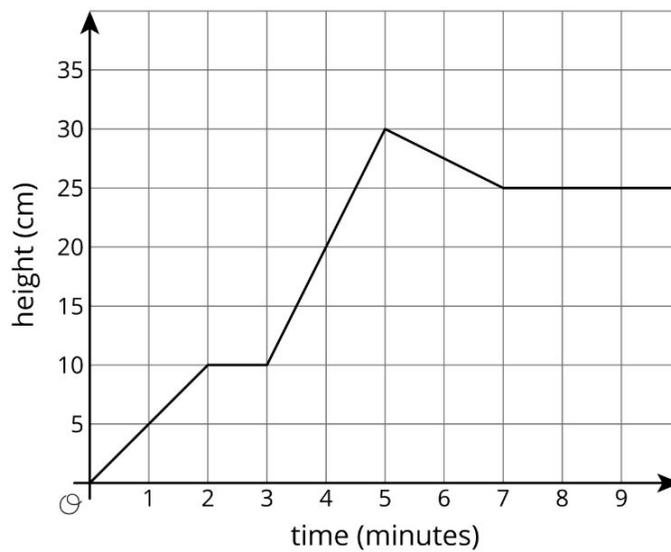
3. This table shows a linear relationship between the amount of gasoline in a tank and time.

| Time (hours) | Gasoline (gallons) |
|--------------|--------------------|
| 0 | 60 |
| 10 | 40 |
| 20 | 20 |

Describe the relationship.

The gasoline in the tank is _____ at a rate of _____ gallons per hour.
(increasing or decreasing)

4. Jada fills her aquarium with water. This graph shows the height of the water, in cm, in the aquarium as a function of time in minutes.



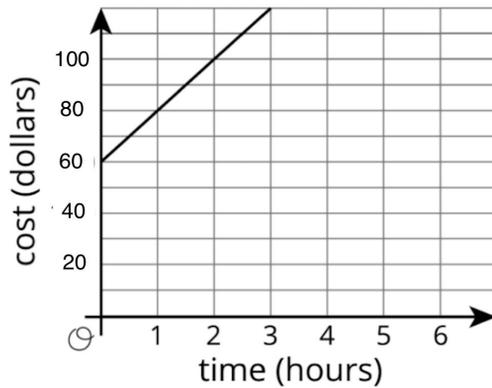
What was the fastest rate that the aquarium was filled, in cm per minute? _____

#5 - 9 Two Heating and Air Conditioning companies charge money for each hour of work, plus a one-time fee.

Al's Air charges according to this table:

| <i>Time (hours)</i> | <i>Cost (dollars)</i> |
|---------------------|-----------------------|
| <i>1</i> | <i>110</i> |
| <i>4</i> | <i>155</i> |
| <i>6</i> | <i>185</i> |

H & C charges according to this graph:



5. How much does *Al's Air* charge for each hour of work?

6. What is the *Al's Air* one-time fee?

7. How much does *H & C* charge for each hour of work?

8. What is the *H & C* one-time fee?

9. After _____ hours, *Al's Air* and *H & C* will charge the same total for the same amount of time.

10. Allison counts 4 cells under a microscope. She counts them again each day for five days, and finds that the number of cells quadrupled each day—from 4 to 16, then from 16 to 64, and so on.

Is the number of cells a function of the number of days? If so, is it linear? Explain your reasoning.

11. Draw a graph of Pete’s car’s distance from home as a function of time for this situation:

Pete drives his car from his house to the grocery store and parks while he shops. Then he drives home at a slower speed than he drove to the store.



Label the axes appropriately. You do not have to include numbers on the axes or the coordinates of points on your graph.