

# Answer Key

NAME

DATE

PERIOD

## Unit 5: Practice Mid-Unit Assessment

### 1. Multiple Response

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

**False** A.  $y = 4x$   $3 = 4(12) \rightarrow 3$  is not equal to 48

**False** B.  $y = x^4$   $3 = 12^4 \rightarrow 3$  is not equal to  $12 \times 12 \times 12 \times 12$

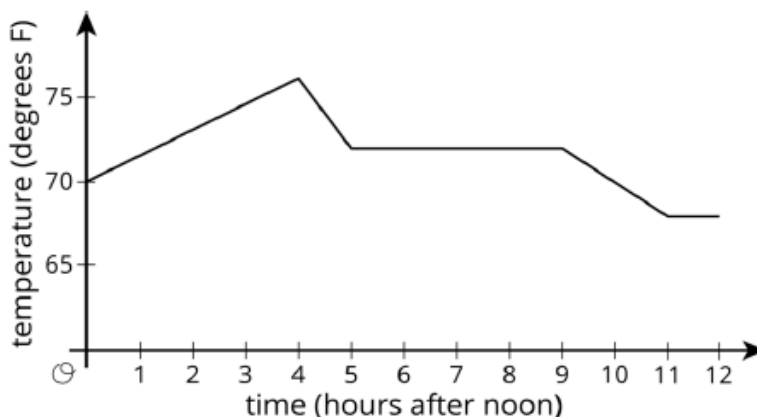
**True** C.  $y = x + (-9)$   $3 = 12 + (-9) \rightarrow 3$  is equal to 3

**False** D.  $y = x + 9$   $3 = 12 + 9 \rightarrow 3$  is not equal to 21

**True** E.  $y = \frac{1}{4}x$   $3 = \frac{1}{4}(12) \rightarrow 3$  is equal to 3

### 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)

**False** A. Time is a function of temperature.

$\rightarrow$  Input is NOT a function of Output.

**True** B. Temperature is a function of time.

**True** C. The lowest temperature occurred between 11:00 and 12:00

**False** D. The temperature was increasing between 5:00 and 9:00.

$\rightarrow$  Temperature was constant between 5:00pm and 9pm.

**True** E. The temperature was 70 degrees twice during the 12-hour period.

**True** 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?

**False** A. The water in the tank is increasing at a rate of 3 gallons per minute.

**False** B. The water in the tank is increasing at a rate of 12 gallons per minute.

**True** C. The water in the tank is decreasing at a rate of 3 gallons per minute.

**False** 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.

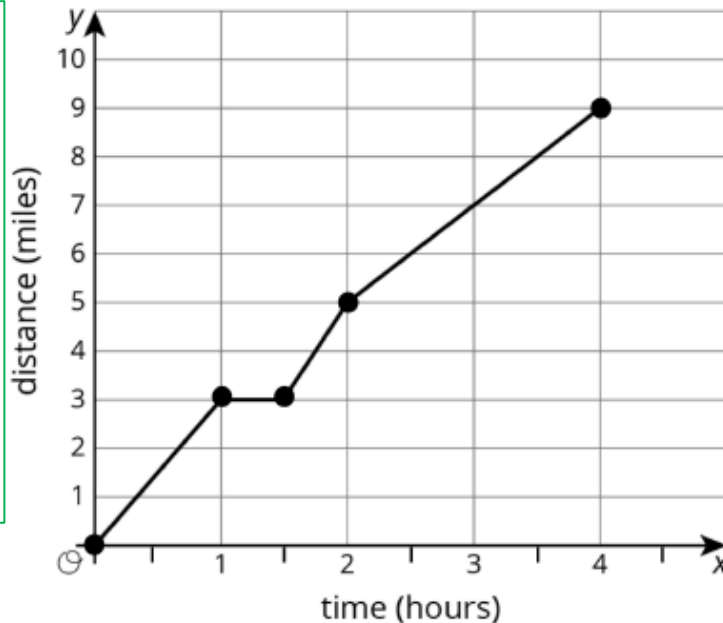
In Phases:

1: 3 miles per 1 hour

2: 0 miles per  $\frac{1}{2}$  hour

3: 2 miles per  $\frac{1}{2}$  hour

4: 4 miles per 2 hours



What was her fastest speed, in miles per hour? 4 miles per hour based on Phase 3.

Which two ordered pairs did you use to determine this speed? ( 1.5 , 3 ) and ( 2 , 5 )

Using the two points, what was the starting and ending distance in miles? 2 miles (change in y)

What was the total amount of time in hours between these two points?  $\frac{1}{2}$  hour (change in x)

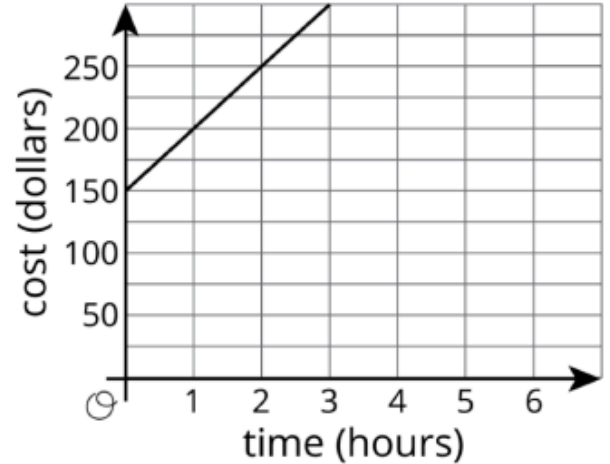
5. Two plumbing companies charge money for each hour of work, plus a one-time fee.

*A Plus Plumbing* charges according to this partial table:

Fill in the table to see trends:

Time (in hours) $x$	Cost (in dollars) $y$
0	\$50
1	\$125
2	\$200
3	\$275
4	\$350
5	\$425
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

## PRACTICE for Unit 5: Mid-Unit Assessment

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

**True** A.  $y = \frac{1}{5}x$      $5 = 1/5 (25) \rightarrow 5$  is equal to 5

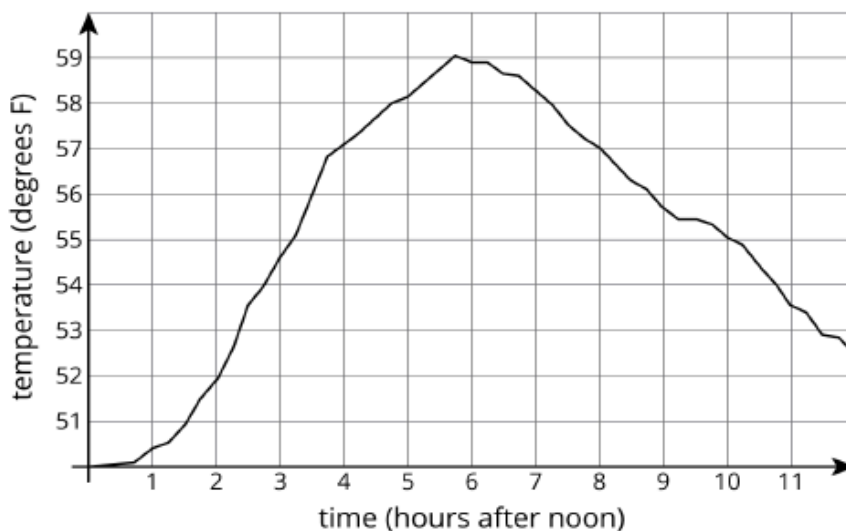
**False** B.  $y = x + 20$      $5 = 25 + 20 \rightarrow 5$  is not equal to 45

**False** C.  $y = x^2$      $5 = 25^2 \rightarrow 5$  is not equal to  $25 \times 25$

**True** D.  $y = x - 20$      $5 = 25 - 20 \rightarrow 5$  is equal to 5

**False** E.  $y = 5x$      $5 = 5 (25) \rightarrow 5$  is not equal to 125

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.?

**9:00pm**  $\rightarrow$  It was 55.5 degrees vs. 54.5 degrees at 3:00pm

- B. Approximately when was the temperature highest?

**Approximately 5:40pm**  $\rightarrow$  It was just over 59 degrees

- C. Find another time that the temperature was the same as it was at 4:00 p.m.

**8:00pm**  $\rightarrow$  Both 4pm and 8pm measured 57 degrees

- 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.?

**1-3pm**  $\rightarrow$  It was a rise of 4 degrees vs. 3.75 degrees between 3-5pm

- E. Does this graph show that temperature is a function of time, or time is a function of temperature?

**Temperature is a function of time**  $\rightarrow$  Output is a function of the input

- F. When the input for the function is 8, what is the output? What does that tell you about the time and temperature?

**Output is 57**  $\rightarrow$  At 8pm it was 57 degrees

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 decreasing at a rate of 2 gallons per hour.  
(increasing or decreasing)

*Based on the table, the amount of gasoline decreases by 20 gallons every 10 hours.*

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.

In Phases:

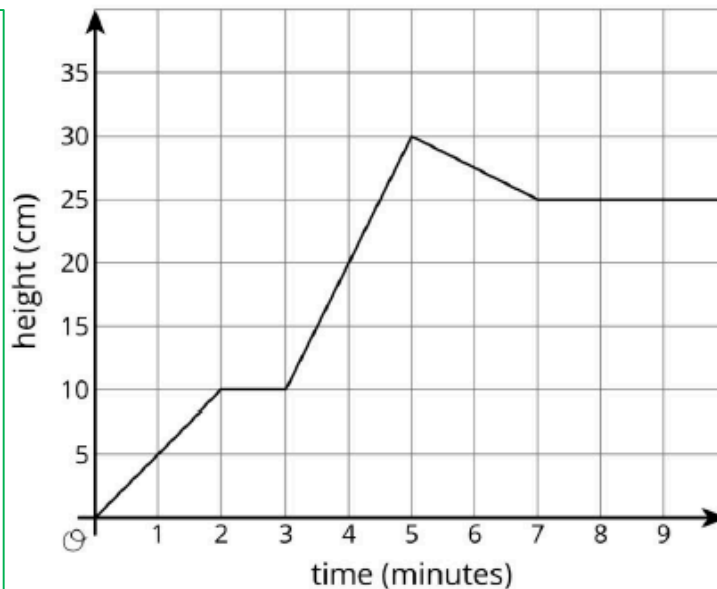
1: 10cm per 2 minutes  
(filling)

2: 0cm per 1 minute  
(constant / no change)

3: 20cm per 2 minutes  
(filling)

4: -5cm per 2 minutes  
(draining)

5. 0 cm per 3 minutes  
(constant / no change)



What was the fastest rate that the aquarium was filled, in cm per minute? 10cm / minute  
(based on Phase 3)

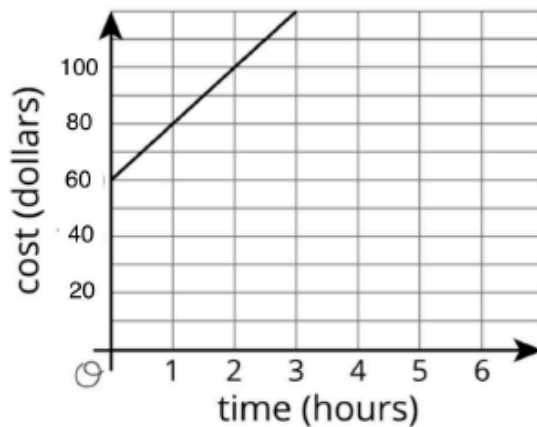
#5 - 9 Two Heating and Air Conditioning companies charge money for each hour of work, plus a one-time fee.

*Consider building new common (more complete) tables for each company:*

*Al's Air charges according to this table:*

Time (hours)	Cost (dollars)
1	110
4	155
6	185

*H & C charges according to this graph:*



**Al's Air:**

Time (hours)	Cost (dollars)
0	95
1	110
2	125
3	140
4	155
5	170
6	185
7	200

**H & C:**

Time (hours)	Cost (dollars)
0	60
1	80
2	100
3	120
4	140
5	160
6	180
7	200

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

**HOURLY RATE: \$15 per hour**

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

**ONE TIME FEE: \$95**

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

**HOURLY RATE: \$20 per hour**

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

**ONE TIME FEE: \$60**

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

**Note: This is the ONLY time they will ever charge the same price.**