

Directions: Answer the following question(s).

- 1 Select all options in which the distance between the 2 numbers on the number line is the same as $|-8 - 4|$.

- A. -8 and 4
- B. -8 and -4
- C. 8 and 4
- D. 8 and -4

- 2 This table shows the monthly change in Sara's bank account balance for each month listed. For example, the account balance change of -30 means that Sara's balance decreased by \$30 from the beginning of the month to the end of the month of February.

Month	Account Balance Change (Dollars)
January	+38
February	-30
March	-19
April	+49

Determine whether each statement about Sara's bank account balance is true or false, based on the information in the table.

- A. Sara has less money in her account at the end of February than at the end of any other month.
- B. Sara's account balance is the same at the end of April as it is at the end of January.
- C. Sara has more money in her account at the end of April than she did at the **beginning** of January.

- 3 The weather report predicted that the low temperature would be -8 degrees Fahrenheit. The radio announcer said, "The low temperature was 5 degrees colder than predicted!"

What was the low temperature, in degrees Fahrenheit?

- 4 Enter the value of the $2.1 + (-3) - (-0.9)$.

- 5 Select all expressions that equal $-7 - (-12)$.

- A. $7 + (-12)$
- B. $-7 + (12)$
- C. $-7 + 12$
- D. $7 + 12$

Directions: Answer the following question(s).

6 An equation is shown.

$$-20.5 + 10.25$$

What is the value of the expression?

- A. -11.25
- B. -10.25
- C. -9.75
- D. -9.25

7 An equation is shown.

$$8.75 + (-14.5)$$

What is the value of the expression?

- A. -5.75
- B. -5.5
- C. -5.25
- D. 5.75

8 An equation is shown.

$$-25.5 + 5.75$$

What is the value of the expression?

- A. -20.75
- B. -20
- C. -19.75
- D. -18.75

9 An equation is shown.

$$45.75 + (-47.5)$$

What is the value of the expression?

- A. -93.25
- B. -2.25
- C. -2
- D. -1.75

Directions: Answer the following question(s).

10 Select two of the expressions that have a value of -8 .

- A. $-2 + 6$
- B. $-4 + (-4)$
- C. $6 + (-14)$
- D. $11 + (-3)$

11 Using the number line below, determine which of the following expressions are equal to -9 . Select all that apply.



- A. $-12 - (-3)$
- B. $-5 - 4$
- C. $1 - (-8)$
- D. $5 - 14$
- E. $-10 - 1$

12 An equation is shown.

$$3.5 + (-18.25)$$

What is the value of the expression?

- A. -15.25
- B. -14.75
- C. 14.75
- D. 21.75

13 What is the value of $6 - (-8) + (-12) + 4$?

- A. -2
- B. 4
- C. 6
- D. 28

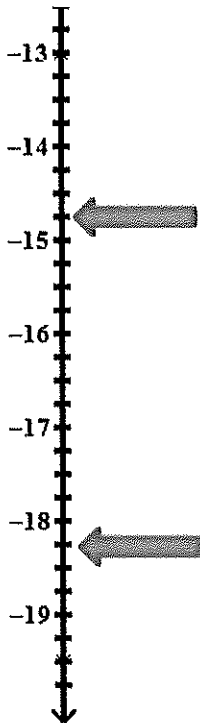
14 Which situation will result in a neither positive nor negative number?

- A. Dan owes his brother \$10 and pays him \$5.
- B. Jill climbs 30 feet uphill, then tumbles down 25 feet.
- C. Molly digs a hole 3 feet deep. Later, her dad fills the hole.
- D. Greg gains 10 yards on one football play, but loses 15 yards on the next play.

Directions: Answer the following question(s).

- 15 Ralph owes the bank \$86.25. He deposits \$80.00 into his account.
What is the current balance of Ralph's account?

- 16 The temperature at noon on a cold winter day was $-14\frac{3}{4}$ °F. By evening, the temperature had dropped to $-18\frac{1}{4}$ °F. By how much did the temperature change?



- A. It decreased $4\frac{1}{2}$ °F
B. It increased $4\frac{1}{2}$ °F
C. It decreased $3\frac{1}{2}$ °F
D. It increased $3\frac{1}{2}$ °F

Directions: Answer the following question(s).

- 17 What is the value of the expression below?

$$-5\frac{1}{4} - \left(-1\frac{1}{2} + 3\frac{3}{4}\right)$$

- 18 What is the value if the expression shown below?

$$-6\frac{1}{4} + 4\frac{3}{4}$$

- A. $-2\frac{1}{2}$
B. $-1\frac{1}{2}$
C. -1
D. $1\frac{1}{2}$
- 19 What is the value of the expression $-\left(2\frac{1}{2} - 7\right) - 6\frac{1}{2}$?

- A. -16
B. -2
C. 3
D. 11

- 20 Which of the following statements correctly explains the value of the expression $5\frac{3}{4} - 7\frac{1}{4}$?

- A. The value of the expression is $-2\frac{1}{2}$, since $(5 - 7) - \left(\frac{3}{4} - \frac{1}{4}\right) = -2 - \frac{1}{2} = -2\frac{1}{2}$.
B. The value of the expression is $-1\frac{3}{4}$, since $(5 - 7) + \left(\frac{3}{4} - \frac{1}{4}\right) = -2 + \frac{1}{4} = -2\frac{3}{4}$.
C. The value of the expression is $-1\frac{1}{2}$, since $(5 - 7) + \left(\frac{3}{4} - \frac{1}{4}\right) = -2 + \frac{1}{2} = -1\frac{1}{2}$.
D. The value of the expression is $-2\frac{1}{4}$, since $(5 - 7) - \left(\frac{3}{4} - \frac{1}{4}\right) = -2 - \frac{1}{4} = -2\frac{1}{4}$.

- 21 Which expression has the greatest value?

- A. $-2(5 - 3) + 22$
B. $12 - (5 - 6) + 3$
C. $-1 + (5(-3 + 9))$
D. $9 - (-2 + 6) + 11$

Directions: Answer the following question(s).

22 If a bank represents deposits with positive numbers and withdrawals as negative numbers, what could $5 \cdot (-20)$ represent?

- A. Five deposits of \$20
- B. Five withdrawals of \$20
- C. A deposit of \$5 followed by a \$20 withdrawal
- D. A \$5 withdrawal followed by a \$20 deposit

23 Which of the following expressions results in a positive number? Select three that apply.

- A. $-6(-3)(-2)$
- B. $-4(-3-1)$
- C. $-3(-8)$
- D. $-3(-2+6)$
- E. $6(4-2)$

24 Enter the value of $\frac{1}{2}(1.7)$

25 Enter the value of $(-8)(45)\left(\frac{1}{8}\right)$

26 Over 4 months, a total of \$ 500 was deducted from Wayne's checking account for his auto insurance. Which number sentence **best** illustrates the amount by which Wayne's account changed each month?

- A. $500 \div 4 = 125$
- B. $-500 \div -4 = 125$
- C. $-500 \div 4 = -125$
- D. $500 \div -4 = -125$

27 Mariana bought a breakfast sandwich every morning for 21 days. Her bank account shows that she spent a total of \$ 94.50 on breakfast sandwiches. Which equation **best** illustrates the amount by which Mariana's bank account changed each morning?

- A. $94.50 \div 21 = 4.50$
- B. $94.50 - 21 = 73.50$
- C. $-94.50 \div 21 = -4.50$
- D. $-94.50 + 21 = -73.50$

Directions: Answer the following question(s).

28 What is the value of the expression $-12 \times \frac{2}{3}$?

29 Select all quantities that are equal to $\frac{2}{-9}$.

A. $\frac{2}{9}$

B. $\frac{-2}{-9}$

C. $\frac{-2}{9}$

D. $-\frac{2}{9}$

E. $-\frac{-2}{9}$

30 Which statement about the expression $-\frac{4}{9} \times -\frac{3}{8}$ is true?

- A. The product is less than -1 .
- B. The product is greater than 1 .
- C. The product is a positive number.
- D. The product is less than both factors.

Directions: Answer the following question(s).

1 If $14y = 84$, what is the value of y ?

2 If $62 - n = 17$, what is the value of n ?

3 If $63 \div n = 9$, what is the value of n ?

- A. 7
- B. 9
- C. 54
- D. 63

4 Vanessa saves \$8 a month so that she can buy a new bike. She needs to save \$96. Let m represent the number of months she needs to save. Which equation shows how to calculate m ?

- A. $96m = 8$
- B. $8m = 96$
- C. $96 + m = 8$
- D. $8 + m = 96$

5 Yuki ran 12 miles in total last week. She only ran on Monday and Friday. She ran twice as far on Friday as she did on Monday. The equation below can be used to find m , the number of miles Yuki ran on Monday.

$$m + 2m = 12$$

How many miles did Yuki run on Monday?

6 Which expression is equivalent to $(2a - 7) + 5(3 - a)$?

- A. $a + 8$
- B. $-3a + 8$
- C. $-10a + 15$
- D. $-15a$

7 An expression is shown.

$$-4x + 28$$

What is the expression in factored form?

Directions: Answer the following question(s).

8 Which expression is equivalent to $3(2x + 1) - (x - 1)$?

- A. $5x$
- B. $5x + 2$
- C. $5x + 4$
- D. $3x + 6$

9 An expression is shown.

$$3f - 7 + 6g + f - 8g + 4$$

Which of the following is equivalent to the expression?

- A. $-4f + 6fg - 4g$
- B. $-3f - 2g + 4$
- C. $4f - 2g - 3$
- D. $3f + 2g - 7$

10 Which of the following expressions is equivalent to $83p - 8q + 29 - 28p + 21q - 5$?

- A. $75q + p + 16$
- B. $75p - 7q - 24$
- C. $55p + 21q - 5$
- D. $55p + 13q + 24$

11 An expression is shown.

$$-16x - 26$$

What is the expression in factored form?

12 Consider the following expression.

$$4x - 3(2x - 1)$$

Which of the following statements is true?

- A. When the distributive property is applied, the result is $4x - 6x + 3$.
- B. When the distributive property is applied, the result is $4x - 6x - 3$.
- C. When the associative property is applied, the result is $(4x - 2x) - (3 - 1)$.
- D. When the associative property is applied, the result is $(4x - 2x) + (-3 - 1)$.

Directions: Answer the following question(s).

13 Which of the following expressions is equivalent to $x + 14 - 3x - 27 - 11y$?

- A. $4x + 11y + 41$
- B. $-2x - 11y - 13$
- C. $12x - 11y - 27$
- D. $12x - 38y$

14 Which equation illustrates the commutative property of addition?

- A. $(4x + 3) + 5 = 4x + (3 + 5)$
- B. $4x + 0 + 3 = 4x + 3$
- C. $4(x + 3) = 4x + 12$
- D. $4x + 3 = 3 + 4x$

15 The price of a large avocado is \$0.27 less than $\frac{1}{2}$ the price of a honeydew melon. If large avocados are on sale for \$1.29 each, the equation below can be used to find h , the price for each honeydew melon.

$$\frac{1}{2}h - 0.27 = 1.29$$

What is the price for each honeydew melon?

- A. \$0.78
- B. \$1.56
- C. \$2.04
- D. \$3.12

16 Kaley observed shoppers entering the mall and recorded whether they were wearing flip-flops or some other type of shoe. There were 11 less than 2 times the number of people wearing flip-flops than any other type of shoe. There were 197 shoppers wearing flip-flops. The equation below can be used to find c , the number of customers Kaley observed wearing something other than flip-flops.

$$2c - 11 = 197$$

How many shoppers did Kaley observe wearing something other than flip-flops?

- A. 93
- B. 104
- C. 372
- D. 416

Directions: Answer the following question(s).

- 17 In Major League Baseball history, Babe Ruth hit 29 more than 5 times the number of career home runs than Jackie Robinson. Babe Ruth hit 714 career home runs. Which equation can be used to find h , the number of career home runs Jackie Robinson hit?

- A. $5h - 29 = 714$
B. $5h + 29 = 714$
C. $\frac{h}{5} - 29 = 714$
D. $\frac{h}{5} + 29 = 714$

- 18 Samantha is trying to decide between two bikes. The first bike costs \$150 and has all the features that she wants. The second bike costs \$20 more than half the cost of the first bike but does not have adjustable handlebars or extra padding on the seat. The cost of the second bike (b) can be represented by the equation $2(b - \$20) = \150 . How many dollars does the second bike cost?

- 19 Helen went to an ice cream store and bought five ice cream sundaes for herself and her friends. A sundae costs \$2.75, and toppings are extra. Three of the sundaes had one extra topping, one had two extra toppings, and Helen's sundae had three extra toppings. The total cost for all five sundaes was \$17.75. The equation below can be used to find the cost of a single topping.

$$(5 \times \$2.75) + 8t = \$17.75$$

What is the cost, in dollars, of a single topping?

- 20 Jerrius bought 4 boxes of granola bars to share with his friends on a camping trip. Each box contains peanut butter granola bars and fruit-and-nut granola bars. All together, Jerrius has 52 granola bars, 32 of which are peanut butter flavored. The equation below can be used to find f , the number of fruit-and-nut granola bars in each box that Jerrius bought.

$$32 + 4f = 52$$

How many fruit-and-nut granola bars are in each box?

- 21 Camille bought a new pair of running shoes, and three pairs of colorful laces to go with them. The shoes themselves cost \$57.80, and the pairs of shoelaces each cost s dollars. The total cost of her purchase was \$68.48. The equation below can be used to find the cost of each pair of shoelaces.

$$3s + 57.80 = 68.48$$

What is the cost, in dollars, of one pair of shoelaces?

- 22 If $3n - 7 = 5$, what is the value of n ?

Directions: Answer the following question(s).

- 23 Which list only contains numbers that are solutions to the inequality?

$$-a + \frac{1}{3} > \frac{1}{4}$$

- A. 1, 4, 7
- B. -9, -5, -1
- C. $\frac{1}{3}, \frac{5}{6}, 2$
- D. -1, 0, $\frac{1}{10}$

- 24 Which value makes the following inequality TRUE?

$$4 - 8x > 2$$

- A. 0
- B. $\frac{1}{4}$
- C. $\frac{1}{2}$
- D. 1

- 25 $\frac{x}{7} < 2$ is equivalent to

- A. $x > \frac{2}{7}$
- B. $x < \frac{2}{7}$
- C. $x > 14$
- D. $x < 14$

- 26 In the inequality below, y represents the number of hand tools that can be rented at a hardware store each day.

$$2y + 12 < 290$$

Which phrase BEST describes the number of hand tools the store rents each day?

- A. more than 151 hand tools
- B. less than 151 hand tools
- C. more than 139 hand tools
- D. less than 139 hand tools

Directions: Answer the following question(s).

27 What values of x make the inequality $9 < 12x + 141$ true?

- A. $x < -11$
- B. $x > -11$
- C. $x < 11$
- D. $x > 11$

Directions: Answer the following question(s).

- 1 The prices for different types and amounts of building bricks are given. Select the options that have the same cost per brick.

- A. 1500 bricks for \$1,110.00
- B. 1300 bricks for \$845.00
- C. 230 bricks for \$170.20
- D. 100 bricks for \$75.00
- E. 35 bricks for \$25.90

- 2 During a thunderstorm, 4 inches of rain fell in $2\frac{1}{2}$ hours. What was the rate of rainfall in inches per hour?

- 3 Gabby has five bags of beads. Each bag has the same proportion of blue beads (x) to red beads (y). The table shows the numbers of beads in the five bags.

Numbers of Beads

Blue (x)	Red (y)
32	48
48	72
60	90
80	120
100	150

What is the constant of proportionality of red beads to blue beads? Record the answer as a decimal number to the nearest tenth.

- 4 Shana bought 8 apples for \$4 during a sale at her neighborhood market. Which proportion can be used to calculate the expected cost of 12 apples?

- A. $\frac{\$4}{8} = \frac{d}{12}$
- B. $\frac{\$4}{12} = \frac{8}{d}$
- C. $\frac{8}{d} = \frac{12}{\$4}$
- D. $\frac{d}{12} = \frac{8}{\$4}$

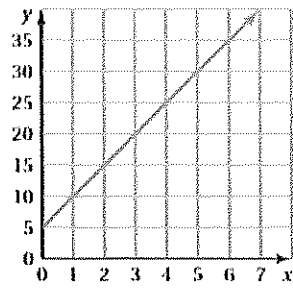
Directions: Answer the following question(s).

- 5 The distance a train travels is proportional to time. In 4 hours, the train travels 380 kilometers. The relationship between distance and time can be represented as $y = kx$, where x is the time, in hours, and y is the distance, in kilometers. What is the value of k for this train?
- 6 When the store had a sale on strawberries, Lamont bought 3 packs for \$5.01. The next week the strawberries were still on sale so Lamont bought 2 more packs for \$3.34.
What was the sale price of a single pack of strawberries?
- 7 Since 1992, the United States Food and Drug Administration has required food labels to include nutrition facts. Tracy noticed that the serving size for a boxed meal is 1.5 cups, and each serving contains 148 milligrams of sodium. Tracy used the entire box to make 6 cups of food. How many milligrams of sodium are in the meal Tracy prepared?
- 8 On a sunny day, Eden and Jane noticed that their shadows were of different lengths. Jane measured Eden's shadow and found that it was 8 feet long. Eden then measured Jane's shadow and found that it was 8.5 feet long. If Eden is $5\frac{1}{3}$ feet tall, how many feet tall is Jane? Express your answer as an improper fraction.
- 9 Victory Theater offers matinee tickets that are 35% cheaper than the tickets for the evening shows. If an evening ticket costs \$8.00, how many dollars does a matinee ticket cost?
- 10 In a vegetable market, all cantaloupes are on sale for 70% off the original price. If a single cantaloupe has an original price of \$2.60, how many dollars is the sale price?

Directions: Answer the following question(s).

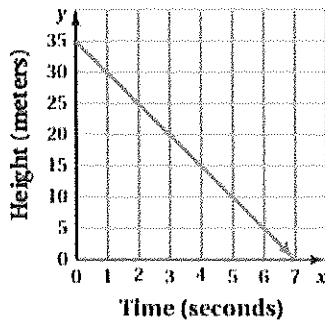
11 Which graph shows x and y in a proportional relationship?

A.



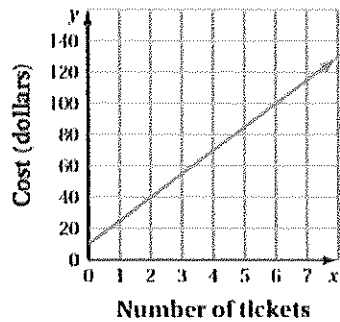
B.

Helicopter



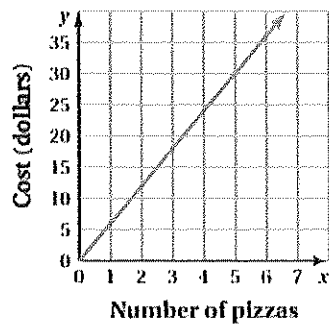
C.

Tickets



D.

Pizzas



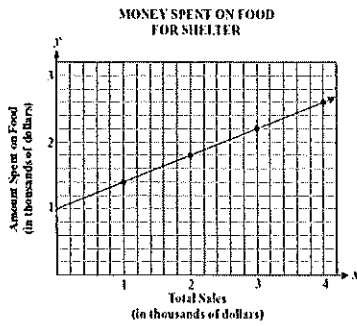
Directions: Answer the following question(s).

- 12 TRAVEL What is the unit rate of traveling 372 miles in 6 hours? (1 pt.)
- A. 6.2 mph
 - B. 55 mph
 - C. 60 mph
 - D. 62 mph

Directions: Answer the following question(s).

13 Which of the following graphs represents a proportional relationship? (1 pt.)

A.



B.

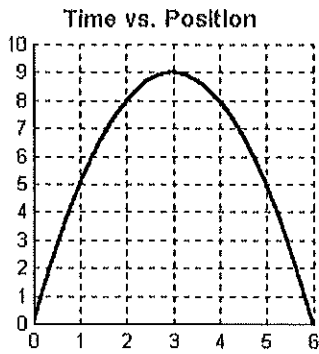
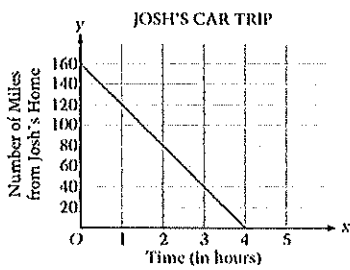
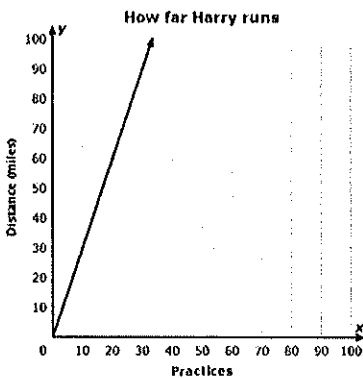


Figure 1.

C.



D.



Directions: Answer the following question(s).

- 14 The table below shows the cost of movie tickets based on the number of tickets purchased.

Number of Tickets	Cost
2	\$17.00
3	\$25.50
4	\$34.00
5	\$42.50

Find the constant of proportionality (r). Using the value for r , enter an equation that will calculate the cost (y) of x movie tickets in the form of $y = rx$. (4 pt.)

- A. $y = 8.5x$
- B. $y = 17x$
- C. $y = 9.5x$
- D. $y = 5.5x$

- 15 The coach for a basketball team wants to buy new shoes for her 12 players.

Super Sports is offering a 20% discount on each pair of shoes, which were originally priced at \$72.50. A 6.5% sales tax will be applied to the discounted price.

The same shoes are also available on Double Dribble's web site for \$54.75. A 9% processing fee will be applied to the cost of the shoes, plus a shipping fee of \$5.99 for each pair.

What is the difference in the total costs of the 12 pairs of shoes between the two stores?
Show your work clearly.

- 16 Edith is shopping for a new leather couch. Jordan's Furniture has one that costs \$3,000. However, this weekend she can get a 15% discount. How much money will Edith save if she buys the couch this weekend?

- A. \$15
- B. \$2,550
- C. \$45,000
- D. \$450

- 17 Caroline wants to buy a pair of shoes that has an original price of \$50.00. She has a coupon for a 40% discount off of the original price. What is the final cost for Caroline's shoes?

- A. \$10
- B. \$20
- C. \$30
- D. \$48

Directions: Answer the following question(s).

- 18 Kelly sold digital cameras on her web site. She bought the cameras for \$56 each and included a 65% markup to get the selling price. To the nearest dollar, what was the selling price for one camera?

Show your work.

- 19 Mya sold Ipods on her web site. She bought the iPods for \$78 each and included a 45% markup to get the selling price. To the nearest dollar, what was the selling price for iPod?

Show your work.

- 20 Dinner cost \$12.00 plus a 20% tip. What was the total cost of lunch?

- 21 If Paul answers 6 questions out of 15 test questions correctly, what percent of his test questions did he answer correctly?

- A. 7%
- B. $\frac{3}{5}\%$
- C. 40%
- D. 60%

- 22 The table below shows the amount of money Allen earns for tutoring based on the number of hours he tutors.

Hours	Earnings
2	\$30
3	\$45
4	\$60

Find the constant of proportionality (r). Using the value of r , enter an equation that will calculate the amount Allen earns (y) after tutoring x hours in $y=rx$.

- A. $y = 2x$
- B. $y = 30x$
- C. $y = 15x$

- 23 What is the unit rate of \$2.50 for 10 pens?

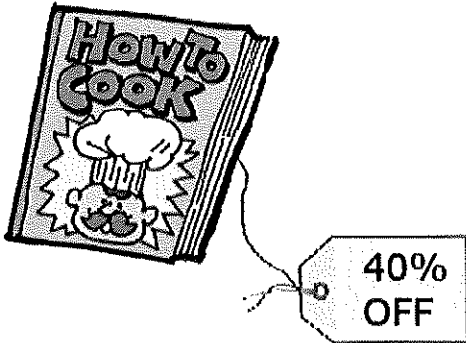
- A. \$0.10 per pen
- B. \$0.25 per pen
- C. \$0.40 per pen

Directions: Answer the following question(s).

- 24 Caroline wants to buy a pair of shoes that has an original price of \$50.00. She has a coupon for a 40% discount off of the original price. Her state charges an 8% sales tax on the discounted price. What is the final cost for Caroline's shoes?

- A. \$28.40
B. \$32.40

- 25 A cookbook originally cost \$13.00. Yesterday, Marta bought it at 40% off.



How much was deducted from the original price?

- A. \$0.40
B. \$5.20

- 26 Dave buys a baseball for \$15 plus an 8% tax. Mel buys a football for \$20 plus an 8% tax. Enter the difference in the amount Dave and Mel paid, including tax. Round your answer to the nearest cent.

- 27 If 2.5 pounds of onions cost \$4.00, how much would 1 pound of onions cost?

- 28 The Rodriguez family ate at a restaurant.

- The cost of the meal was \$45.67.
- The sales tax was 8%.
- They left a tip of 15% of the cost of the meal and the tax.

What was the total cost of the meal, tax, and tip combined?

- A. 49.32
B. 45.9
C. 56.72
D. 56.17

Directions: Answer the following question(s).

- 29 A video game is on sale for 45% off the regular price. If the original price was \$60, how much is the sale price?
- 30 You loan your brother \$75 at 9% annual simple interest. He pays you back in 2 years. How much money will he pay you?
- 31 A savings account pays 4 1/2% interest. How much interest will be earned on \$450 in 3 years? How much will be in the account in 3 years?
A. \$75.89; \$525.75
B. \$60.75; \$510.75
C. \$56.80; \$799
D. \$34.09; \$548.09
- 32 Juan fills up his truck with gas. He paid \$3.05 per gallon. If he buys 9 gallons, how much will he pay?
- 33 Which of the following equations represent a proportional relationship? Select two that apply.
A. $\frac{3}{6} = \frac{6}{3}$
B. $\frac{4}{6} = \frac{10}{15}$
C. $\frac{5}{5} = \frac{11}{11}$
D. $\frac{8}{15} = \frac{4}{30}$
- 34 José put \$1,500 into a savings account. He earns 3% interest every year. How much simple interest will he earn at the end of 3 years?
A. \$45.00
B. \$135.00
C. \$13,500.00
- 35 Luke buys a TV that is on sale for 25% off the original price. The original price is \$120 more than the sale price. What is the original price of the TV?