

Name: _____ Class: _____

Review (Expressions and Equations)

Writing and Solving Two-Step Equations:

A one-year membership to Metro Gym costs \$460. There is a fee of \$40 when you join and the rest is paid monthly. Write an equation to represent the situation that can help members find how much they pay per month then solve it.

Step (1) Identify what you are trying to find

Step (2) Identify important information in the problem

- A) One-time joining fee: \$40
- B) Fee charged for 1 year: $(12)(m)$
- C) Total cost for the year: \$460

Step (3) Write the equation:

Joining fee	plus	12	times	monthly cost	equals	total
\$40	+	12	x	m	=	\$460

Step (4) Solve the equation:

$$\begin{array}{r} \$40 + 12m = \$460 \\ \underline{-\$40} \qquad \qquad \underline{-\$40} \\ \hline 12m = \$420 \\ \frac{12}{12} \qquad \frac{12}{12} \qquad \qquad m = \$35 \end{array}$$

1. Billy has a gift card with a \$150 balance. He buys several video games that cost \$35 each. After the purchases, his gift card balance is \$45.

A) Write an equation to help find out how many video games Billy bought.

B) Solve the equation.

2. A dog sled driver added more gear to the sled, doubling its weight. This felt too heavy, so the driver removed 20 pounds to reach the final weight of 180 pounds.
A) Write an equation to find the sled's original weight.

B) Solve the equation.

Solving Inequalities:

***NOTE: Never use an equal sign when answering an inequality

A) $X + 5 < -12$
 $- 5 < -5$ $X < -17$ (Display answer on number line graph)

B) $8 \leq Y - 3$
 $+3 \leq +3$ $11 \leq Y$ (Display answer on number line graph)

1. $Y - 5 \geq -7$

2. $21 > 12 + x$

****NOTE: Remember to reverse the inequality sign when multiplying or dividing by a negative number

A) $\frac{y}{3} \geq 5 \rightarrow \left(\frac{3}{1}\right)\left(\frac{y}{3}\right) \geq \left(\frac{3}{1}\right)(5) \rightarrow y \geq 15 \rightarrow$ (Graph Answer)
(Isolate the variable by using the inverse number of the denominator)

B) $\frac{-4x}{-4} > \frac{52}{-4} \rightarrow x < -13$ (Sign reversed because we divide by a negative #) \rightarrow Graph

1. $-10y < 60$

2. $7 \geq \left(-\frac{t}{6}\right)$

Name: _____ Class: _____

Unit Test Review (Ratios, Proportions, Percent)

Unit Rate: (REMEMBER: you read left to right – CHECK: the order in the question to determine the order in which you list the numbers)

Ex. Paige mows $\frac{1}{6}$ acre in $\frac{1}{4}$ hour. How many acres does Paige mow per hour?

$$\frac{1}{6} \div \frac{1}{4} = \frac{1}{6} \times \frac{4}{1} = \frac{4}{6} = \frac{2}{3} \text{ acres per hour}$$

- 1. Greta uses 3 ounces of pasta to make $\frac{3}{4}$ of a serving of pasta. How many ounces of pasta are there per serving?**

Proportional Relationships:

Callie earns money by dog sitting. Based on the table is the relationship between the amount Callie earns and the number of days a proportional relationship?

# of days	1	2	3	4	5
Amt Earned	16	32	48	64	80

Step (1) Write the rates

$$K = \frac{Y}{X} = \frac{\text{Amount earned}}{\# \text{ of days}} = \frac{\$16}{1 \text{ day}} = \frac{\$32}{2 \text{ day}} = \frac{\$48}{3 \text{ day}} \dots$$

Step (2) Compare the rates. The rates are all equal. This means the rate is constant.

$$K = \$16 \text{ (It is a proportional relationship)}$$

Step (3) Write the Unit Rate Equation

$$y = kx \quad \text{so the equation for this example is } y = 16x$$

- 1. Steven earns extra money babysitting. He charges \$31.25 for 5 hours and \$50 for 8 hours.**
 - a) If it is proportional write an equation to represent the relationship, if not state why it is not proportional?**
 - b) How much would Steven charge for 3 hours?**

Graphing a Proportional Relationship:

The table shows the relationship between the amount charged by a house cleaning company (\$) and the amount of time worked (hours). Is the relationship a proportional relationship?

Time (h)	1	2	3	5	8
Total Cost \$	45	90	135	225	360

Step (1) Write the data in the table as ordered pairs (time, cost)
(1, 45), (2, 90), (3, 135), (5, 225), (8, 360)

Step (2) Graph the ordered pairs

The graph is a line that goes through the origin. The relationship is proportional. $K = \$45$

1. Jared rents bowling shoes for \$6 and pays \$5 per bowling game. Is the relationship a proportional relationship? Explain

Games	1	2	3	4
Total Cost (\$)	11	16	21	26

-
2. Plot the points (1, 15), (2, 30), (3, 45), (4, 60), (6, 90). The graph shows the relationship between the distance a bicyclist travels and the time in hours. HINT: Place time on the x-axis and Distance on the y-axis: (time, place).

a) What does the point (4, 60) represent?

b) What is the constant of proportionality?

c) Write an equation in the form $y=kx$ for this relationship.

Name: _____ Date: _____

Review 7.RP.3 / 7.EE.2 / 7.EE.3

Example of a markdown problem: (7.RP.3, 7.EE.2, 7.EE.3)

Target decides to markdown their designer jean collection by 42%. They were selling the jeans for \$90. What is the new discounted price?

Step (1): Find the markdown

$$\begin{aligned} \text{Original Amount} \times \text{Markdown \%} &= \text{Markdown Amount} \\ \$90 \times 0.42 &= \$37.80 \end{aligned}$$

Step (2): Find the discount price

$$\begin{aligned} \text{Original Amount} - \text{Markdown Amount} &= \text{Discount Price/Sale Price} \\ \$90 - \$37.80 &= \$52.20 \end{aligned}$$

-
1. Macy's decides to markdown their designer watch collection by 80%. They were selling the watches for \$250. What is the new discounted price?

Example of a markup problem: (7.RP.3, 7.EE.2, 7.EE.3)

To make a profit, stores mark up the prices on the items they sell. A sports store buys skateboards from a supplier for s dollars. What is the retail price for skateboards that the manager buys for \$35 after a 42% markup?

Step (1): Find the Markup Amount

$$\begin{aligned} \text{Price of the item} \times \text{Markup percent (change \% to a decimal)} &= \text{Markup} \\ 35 \times 0.42 &= \$14.70 \end{aligned}$$

Step (2): Find Retail Price (Selling Price)

$$\begin{aligned} \text{Original Cost} + \text{Markup} &= \text{Retail Price} \\ 35 + 14.70 &= \$49.70 \end{aligned}$$

1. A store marks up all of its holiday merchandise by 20%. Find the selling price of the decorations that regularly sell for \$23.

Example of Percent Decrease: (7.RP.3)

David moved from a house that is 89 miles away from his workplace to a house that is 51 miles away from his workplace. What is the percent decrease in the distance from his home to his workplace?

Step (1): Find the amount of change

$$\text{Amount of Change} = \text{Greater Value} - \text{Lesser Value} = 89 - 51 = 38$$

Step (2): Find the percent decrease. Round to the nearest percent.

$$\text{Percent Change} = \frac{\text{Amount of Change}}{\text{Original Amount}} = \frac{38}{89} = \text{approx. } 0.427 = 43\%$$

Example of Percent Increase: (7.RP.3)

Amber got a raise and her hourly wage increased from \$8 to \$9.50. What is the percent increase?

Step (1): Find the amount of change

$$\text{Amount of Change} = \text{Greater Value} - \text{Lesser Value} = 9.50 - 8.00 = 1.50$$

Step(2): Find the percent increase. Round to the nearest percent

$$\text{Percent Change} = \frac{\text{Amount of Change}}{\text{Original Amount}} = \frac{1.50}{8.00} = 0.1875 \text{ or approx. } 19\%$$

Name: _____ Date: _____

Review (Original Price, Sales Tax, Tip, Commissions)

Original Price:

A supermarket buys ice cream cases to sell to its customers. The sales price per case is \$32. The owner decides to markdown each case by 17%. What is the original price?

Step (1): Total Price % Value – Markdown % = Original Price %

$$100\% - 10\% = 90\%$$

Step (2): Original Price = Sale price / Original Price %

$$x = \$108 / 0.90 \rightarrow x = \$120$$

1. A store buys shirts to sell. Each shirt cost \$20. The markdown is 7%. What was the original price of each shirt?

Tip:

The Jayden family eats at a restaurant that is having a 15% discount promotion. Their meal costs \$78.65 before the discount and they leave a 20% tip. If the tip applies to the cost of the meal before the discount, what is the total cost of the meal?

Step (1): Meal cost x Tip % = Tip Amount

$$\$78.65 \times 0.20 = \$15.73$$

Step (2): Meal cost x Discount = Discount Amount

$$\$78.65 \times 0.15 = \$11.80$$

Step (3): Meal cost – Discount Amount = Discounted meal cost

$$\$78.65 - \$11.80 = \$66.85$$

Step (4): Discounted meal cost + Tip Amount = Total meal cost

$$\$66.85 + \$15.73 = \$82.58$$

1. Mr. Smith takes his family to dinner. There is a 10% discount on the cost of the meal. The meal costs \$92.50 before the discount and they leave a 18% tip. The tip is applied to the cost of the meal before the discount, what was the total cost of the meal?

Total Cost: (using sales tax)

Marcus buys a varsity jacket from a clothing store in Arlington. The price of the jacket is \$80 and the sales tax is 8%. What is the total cost of the jacket?

Step (1): *Find the Sale Tax Amount*

Original Cost x Sale Tax Percent = Sale Tax

$$\$80 \times 0.08 = \$6.40$$

Step (2): *Find the Total Amount*

Original Cost + Sale Tax = Total Amount (Cost)

$$\$80 + \$6.40 = \$86.40$$

1. Morgan wants a new necklace. She finds one that costs \$95 and the sales tax is 7.65%. What is the total cost of the necklace?

Total Monthly Earning using Commissions:

Kedar earns a monthly salary of \$2,200 plus a 3.75% commission on the amount of his sales at a men's clothing store. What would he earn this month if he sold \$4,500 in clothing? Round to the nearest cent.

Step (1): *Find the Commissions Earned*

Sales Amount x Commissions Earned Percent = Commissions Earned

$$\$4,500 \times 0.0375 = \$168.75$$

Step (2): *Find the Total Monthly Earning*

Monthly Salary + Commissions Earned = Total Monthly Earning

$$\$2,200 + \$168.75 = \$2,368.75$$

Winter Break Packet

Name: _____

Date: _____

1. Solve for x .

$$0.5x + 78.2 = 287$$

- A. $x = 104.4$ B. $x = 417.6$ C. $x = 495.8$ D. $x = 730.4$

2. Katie bought 4 sweaters that each cost the same amount and 1 skirt that cost \$20. The items she bought cost a total of \$160 before tax was added. What was the cost of each sweater?

- A. \$20 B. \$35 C. \$40 D. \$45

3. Sammy drew a rectangle that was w inches wide. The expression $2(2w) + 2(w)$ represents the perimeter of the rectangle that Sammy drew. Which statement relates the perimeter to the width of the rectangle?

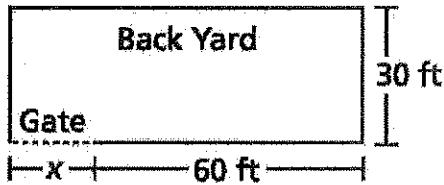
- A. The perimeter is 6 inches more than the width. B. The perimeter is 6 times the width.
C. The perimeter is 2 inches more than the width. D. The perimeter is 2 times the width.

4. Addison wants to ride her bicycle more than 80 miles this week. She has already ridden her bicycle 18 miles. Which inequality could be used to determine the mean number of miles, m , she would need to ride her bicycle each day for six more days to achieve her goal?

- A. $6m + 18 < 80$ B. $6m - 18 < 80$ C. $6m + 18 > 80$ D. $6m - 18 > 80$

5. Which expression represents the product of 3 and $(\frac{5}{4}n + 1.8)$?
- A. $5.55n$ B. $9.15n$ C. $3.75n + 1.8$ D. $3.75n + 5.4$

6. When Keisha installed a fence along the 200-foot perimeter of her rectangular back yard, she left an opening for a gate. In the diagram below, she used x to represent the length, in feet, of the gate.



What is the value of x ?

- A. 10 B. 20 C. 25 D. 30
7. The measure of one side of a square is $(s + 3)$ inches long. Which pair of expressions both represent the perimeter of this square?
- A. $2s + 3$
and
 $(s + 3)(s + 3)$
- B. $2(s + 3)$
and
 $(s + 3)(s + 3)$
- C. $4s + 3$
and
 $(s + 3) + (s + 3) + (s + 3) + (s + 3)$
- D. $4(s + 3)$
and
 $(s + 3) + (s + 3) + (s + 3) + (s + 3)$

8. Winston needs at least 80 signatures from students in his school before he can run for class president. He has 23 signatures already. He and two of his friends plan to get the remaining signatures during lunch. If each person gets the same number of signatures, which inequality can Winston use to determine the minimum number of signatures each person should get so he can run for class president?

A. $3x + 80 \geq 23$ B. $3x + 80 \leq 23$ C. $3x + 23 \geq 80$ D. $3x + 23 \leq 80$

9. Mr. Santino needs a total of 406 forks for his restaurant. He currently has 278 forks. If each set has 12 forks, what is the minimum number of sets of forks he should buy?

A. 11 B. 12 C. 128 D. 140

10. Which expression is equivalent to the expression shown below?

$$-\frac{1}{2} \left(-\frac{3}{2}x + 6x + 1 \right) - 3x$$

A. $\frac{3}{2}x - \frac{1}{2}$ B. $6\frac{3}{4}x - \frac{1}{2}$ C. $-\frac{3}{4}x + \frac{1}{2}$ D. $-5\frac{1}{4}x - \frac{1}{2}$

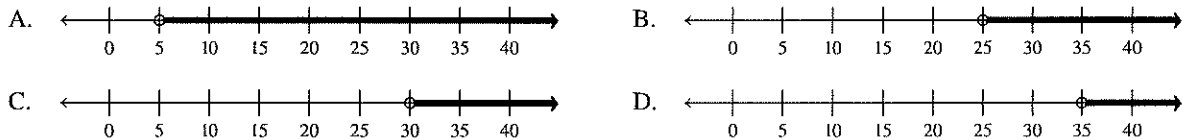
11. Which expression is equivalent to $\frac{7}{2}h - 3 \left(5h - \frac{1}{2} \right)$?

A. $-\frac{23}{2}h + \frac{3}{2}$ B. $-\frac{23}{2}h - \frac{3}{2}$ C. $\frac{37}{2}h + \frac{3}{2}$ D. $\frac{37}{2}h - \frac{3}{2}$

12. A triangle has side lengths of $(5.5x + 6.2y)$ centimeters, $(4.3x + 8.3z)$ centimeters, and $(1.6z - 5.1y)$ centimeters. Which expression represents the perimeter, in centimeters, of the triangle?

- A. $11.4xz + 9.4yz$ B. $11.7xy + 12.6xz - 3.5yz$
 C. $9.8x + 1.1y + 9.9z$ D. $9.8x + 7.8y + 3.5z$

13. Yolanda participated in a walkathon in which each kilometer walked raised \$10 for charity. Her goal was to raise more than \$300 on Saturday and Sunday. She raised \$50 on Saturday. Which graph shows all the distances, in kilometers, that Yolanda could have walked on Sunday to reach her goal?



14. Doug earns \$10.50 per hour working at a restaurant. On Friday he spent $1\frac{3}{4}$ hours cleaning, $2\frac{1}{3}$ hours doing paperwork, and $1\frac{5}{12}$ hours serving customers. What were Doug's earnings?

- A. \$46.97 B. \$47.25 C. \$53.00 D. \$57.75

15. Which steps can be used to solve for the value of y ?

$$\frac{2}{3}(y + 57) = 178$$

- A. divide both sides by $\frac{2}{3}$ then subtract 57 from both sides
 B. subtract 57 from both sides, then divide both sides by $\frac{2}{3}$
 C. multiply both sides by $\frac{2}{3}$, then subtract 57 from both sides
 D. subtract $\frac{2}{3}$ from both sides, then subtract 57 from both sides

16. David bought a computer that was 20% off the regular price of \$1,080. If an 8% sales tax was added to the cost of the computer, what was the total price David paid for it?

- A. \$302.40 B. \$864.00 C. \$933.12 D. \$1,382.40

17. Carmine paid an electrician x dollars per hour for a 5-hour job plus \$70 for parts. The total charge was \$320. Which equation can be used to determine how much the electrician charged per hour?

- A. $5x = 320 + 70$ B. $5x = 320 - 70$ C. $(70 + 5)x = 320$ D. $(70 - 5)x = 320$

18. Josh has a rewards card for a movie theater.

- He receives 15 points for becoming a rewards card holder.
- He earns 3.5 points for each visit to the movie theater.
- He needs at least 55 points to earn a free movie ticket.

Which inequality can Josh use to determine x , the minimum number of visits he needs to earn his first free movie ticket?

- A. $55 \geq 3.5x + 15$ B. $55 \geq 15x + 3.5$ C. $55 \leq 3.5x + 15$ D. $55 \leq 15x + 3.5$

19. Which expression is equivalent to $(-18) - 64n$?

- A. $-2(9 - 32n)$ B. $2(9 - 32n)$ C. $-2(9 + 32n)$ D. $2(9 + 32n)$

20. Which expression represents a factorization of $32m + 56mp$?

- A. $8(4m + 7p)$ B. $8(4 + 7)mp$ C. $8p(4 + 7m)$ D. $8m(4 + 7p)$

21. What is the radius, in centimeters, of a circle that has a circumference of 16π centimeters?

- A. 8 B. 16 C. 32 D. 64

22. The circumference of a circle is 15π centimeters. What is the area of the circle in terms of π ?

- A. $7.5\pi \text{ cm}^2$ B. $15\pi \text{ cm}^2$ C. $56.25\pi \text{ cm}^2$ D. $225\pi \text{ cm}^2$

23. Howard has a scale model of the Statue of Liberty.

- The model is 15 inches tall.
- The scale of the model to the actual statue is 1 inch : 6.2 meters.

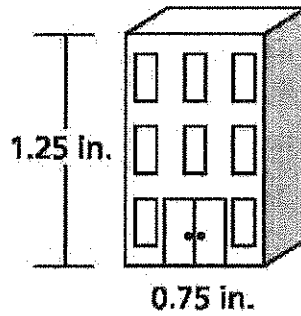
Which equation can Howard use to determine x , the height in meters, of the Statue of Liberty?

- A. $15x = 6.2$ B. $6.2x = 15$ C. $\frac{1}{6.2} = \frac{x}{15}$ D. $\frac{1}{6.2} = \frac{15}{x}$

24. The scale of a model train is 1 inch to 13.5 feet. One of the cars of the model train is 5 inches long. What is the length, in feet, of the actual train car?

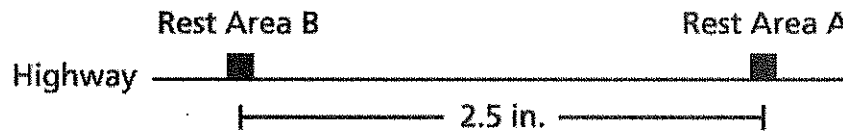
- A. 67.5 B. 32.4 C. 14.5 D. 2.7

25. The drawing of a building, shown below, has a scale of 1 inch to 30 feet. What is the actual height, in feet, of the building?



- A. 22.5 B. 24 C. 37.5 D. 40

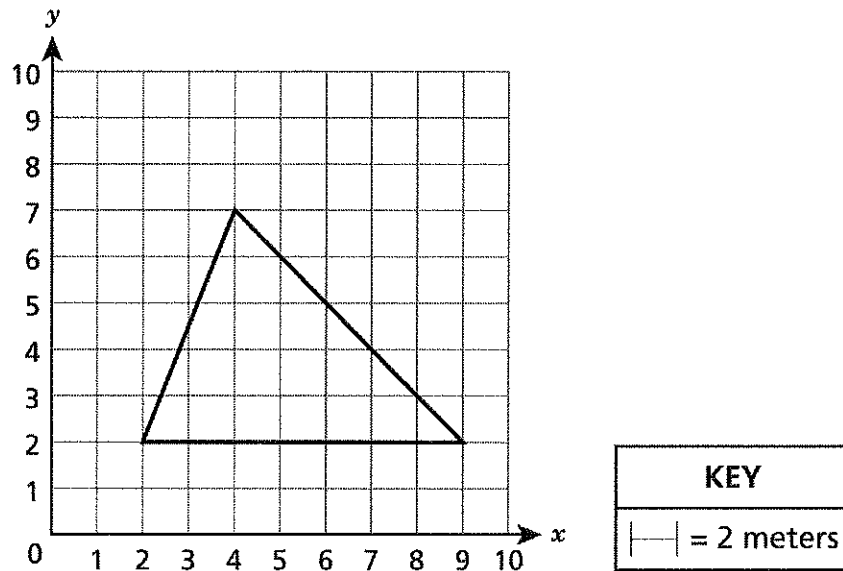
26. Jensen stopped at rest area A along the side of the highway. His map, shown below, has a scale of 1 inch to 35 miles.



Jensen planned to stop at rest area B next. What is the actual distance, in miles, between the two rest areas?

- A. 14.0 B. 37.5 C. 70.5 D. 87.5
27. In a scale drawing of an apartment, 1 centimeter represents $2\frac{3}{4}$ feet. If the length of the kitchen is $4\frac{1}{2}$ cm on the scale drawing, what is the actual length, in feet, of the kitchen?
- A. $6\frac{2}{3}$ B. $7\frac{1}{4}$ C. $8\frac{3}{8}$ D. $12\frac{3}{8}$

28. The scale drawing of a field in the shape of a triangle is shown below.



What is the actual area, in square meters, of this field?

- A. 8.75 B. 17.5 C. 35 D. 70

29. Kiyo used wire fencing to form a border around a circular region in his back yard. If the radius of the circular region was 5 yards, what was the total length of the border, rounded to the nearest tenth of a yard?

- A. 15.7 B. 31.4 C. 78.5 D. 157.1

30. A circle has a diameter of 26 units. What is the area of the circle to the nearest hundredth of a square unit?

- A. 81.68 B. 530.93 C. 2,123.72 D. 8,494.87

31. Yesterday, the temperature at noon was 11.4°F . By midnight, the temperature had decreased by 15.7 degrees. What was the temperature at midnight?

A. -4.3°F

B. -11.4°F

C. -15.7°F

D. -27.1°F

32. Altitude above sea level is given in positive values and below sea level is given in negative values. Which situation describes a hiker in Death Valley stopping at an altitude of 0 feet?

A. The hiker starts at -10 feet then increases altitude by 10 feet.

B. The hiker starts at -10 feet then decreases altitude by 10 feet.

C. The hiker starts at 10 feet then increases altitude by 10 feet.

D. The hiker starts at 0 feet then decreases altitude by 10 feet.

33. Evaluate.

$$\left(-\frac{7}{10} + 0.15\right) \div (-0.125)$$

A. -6.8

B. -4.4

C. 4.4

D. 6.8

34. What is the product of $\left(-\frac{1}{4}\right) \times \left(-\frac{3}{7}\right)$?

A. $-\frac{7}{12}$

B. $-\frac{3}{28}$

C. $\frac{3}{28}$

D. $\frac{7}{12}$

35. What is the decimal equivalent of $\frac{7}{8}$?
- A. 0.780 B. 0.870 C. 0.875 D. 0.885
36. What is the value of $(-\frac{1}{4} - \frac{1}{2}) \div (-\frac{4}{7})$?
- A. $-1\frac{5}{16}$ B. $-\frac{3}{7}$ C. $\frac{3}{7}$ D. $1\frac{5}{16}$
37. Travis, Jessica, and Robin are collecting donations for the school band. Travis wants to collect 20% more than Jessica, and Robin wants to collect 35% more than Travis. If the students meet their goals and Travis collects \$43, how much money did they collect in all?
- A. \$106.78 B. \$128.60 C. \$136.88 D. \$144.99
38. Which situation results in a final value of zero?
- A. The temperature after a decrease of 5°F from a temperature of -5°F .
- B. The height of an airplane after taking off from ground level and rising 1,000 feet.
- C. The amount of money received in change after making a \$10 purchase with a \$20 bill.
- D. The distance above sea level after increasing 24 meters from a depth of 24 meters below sea level.

39. The table below shows the lowest temperature, in degrees Fahrenheit, on each of 5 days for a city.

**LOWEST DAILY
TEMPERATURES**

Day	Temperature($^{\circ}$ F)
Monday	-36°
Tuesday	-25°
Wednesday	12°
Thursday	-3°
Friday	18°

What is the mean lowest temperature, in degrees Fahrenheit, in the city for those 5 days?

- A. -18.8° B. -6.8° C. 6.8° D. 18.8°

40. Three classes at a junior high school raised money to buy new computers.

- Ms. Moore's class raised \$249.00.
- Ms. Aguilar's class raised \$396.62 more than Ms. Moore's class.
- Mr. Barry's class raised \$430.43 less than Ms. Aguilar's class.

What is the total amount of money raised by all three classes?

- A. \$215.19 B. \$464.19 C. \$1,076.05 D. \$1,109.81

41. Which expression can go in the blank to make the equation true?

$$-4.5 + 4.4 + \underline{\quad} = 0$$

- A. $-6.7 + 6.8$ B. $-6.7 + (-6.6)$ C. $7.2 + (-7.2)$ D. $7.2 + (-7.3)$

42. What is the value of the expression below?

$$\frac{3}{8} + \left(-\frac{4}{5}\right) + \left(-\frac{3}{8}\right) + \frac{5}{4}$$

- A. 0 B. $\frac{1}{20}$ C. $\frac{9}{20}$ D. $2\frac{4}{5}$

43. Scientists determined that Antarctica's average winter temperature was -34.44°C . The difference between this temperature and Antarctica's highest recorded temperature was 49.44 degrees. What was Antarctica's highest recorded temperature?

- A. -83.88°C B. -15°C C. 15°C D. 83.88°C

44. What is the value of the expression below?

$$-0.75 - \left(-\frac{2}{5}\right) + 0.4 + \left(-\frac{3}{4}\right)$$

- A. -1.5 B. -0.7 C. 0.8 D. 2.3

45. What is the value of the expression $\frac{\left(\frac{2}{3} - \frac{5}{6}\right)}{\frac{3}{4}}$?

- A. $-\frac{2}{9}$ B. $-\frac{1}{8}$ C. $\frac{1}{8}$ D. $\frac{2}{9}$

46. What is the value of the expression?

$$\frac{8}{15} \div (-0.35)$$

A. $-\frac{75}{14}$

B. $-\frac{32}{21}$

C. $-\frac{21}{32}$

D. $-\frac{14}{75}$

47. Which expression is equivalent to $4 - (-7)$?

A. $7 + 4$

B. $4 - 7$

C. $-7 - 4$

D. $-4 + 7$

48. The elevation at ground level is 0 feet. An elevator starts 90 feet below ground level. After traveling for 15 seconds, the elevator is 20 feet below ground level. Which statement describes the elevator's rate of change in elevation during this 15-second interval?

A. The elevator traveled upward at a rate of 6 feet per second.

B. The elevator traveled upward at a rate of $4\frac{2}{3}$ feet per second.

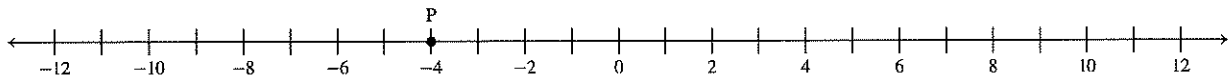
C. The elevator traveled downward at a rate of 6 feet per second.

D. The elevator traveled downward at a rate of $4\frac{2}{3}$ feet per second.

49. Explain the steps needed to determine the value of the expression shown below. Be sure to provide the correct value of the expression in your explanation.

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

50. Point P is shown on the number line below.



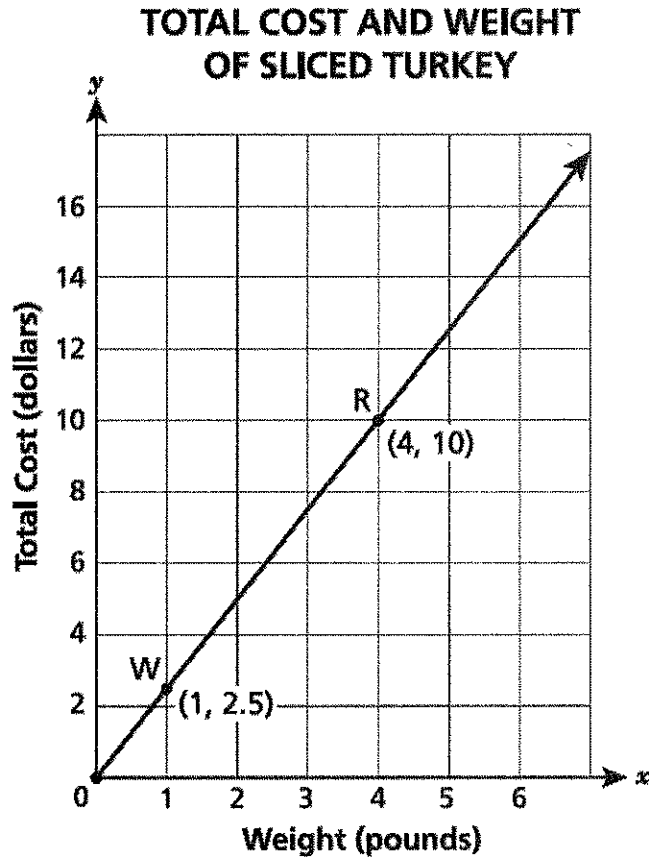
The distance between point Q and point P is $6\frac{1}{2}$ units. Which number could represent point Q ?

- A. $-9\frac{1}{2}$ B. $1\frac{1}{2}$ C. $2\frac{1}{2}$ D. $10\frac{1}{2}$
51. A student uses a solution that contains 16 grams of water to conduct an evaporation experiment.
- At the end of one hour, the amount of water in the solution has decreased by 3.5%.
 - At the end of two hours, the amount of water in the solution has decreased by another 4.25%.

Which calculations can be used to determine the amount of water, in grams, remaining in the solution at the end of the second hour?

- | | |
|---|--|
| A. Step 1: $0.035 \times 16 = 0.56$
Step 2: $16 - 0.56 = 15.44$
Step 3: $0.0425 \times 15.44 = 0.6562$
Step 4: $16 - 0.6562 = 15.3438$ | B. Step 1: $0.035 \times 16 = 0.56$
Step 2: $16 - 0.56 = 15.44$
Step 3: $0.0425 \times 15.44 = 0.6562$
Step 4: $15.44 - 0.6562 = 14.7838$ |
| C. Step 1: $0.35 \times 16 = 5.6$
Step 2: $16 - 5.6 = 10.4$
Step 3: $0.425 \times 10.4 = 4.42$
Step 4: $16 - 4.42 = 11.58$ | D. Step 1: $0.35 \times 16 = 5.6$
Step 2: $16 - 5.6 = 10.4$
Step 3: $0.425 \times 10.4 = 4.42$
Step 4: $10.4 - 4.42 = 5.98$ |

52. A grocery store sells sliced turkey. The graph shows the relationship between the weight of the sliced turkey and the total cost of the sliced turkey. Two points, R and W , are labeled on the graph shown below.



Which statement about the graph is true?

- A. Point R means that the unit rate is \$10.00 per pound.
- B. Point R means that the unit rate is 4 pounds per dollar.
- C. Point W means that the unit rate is \$2.50 per pound.
- D. Point W means that the unit rate is 2.5 pounds per dollar.

53. Carl wants to buy a television that costs \$500, including taxes. To pay for the television, he will use a payment plan that requires him to make a down payment of \$125, and then pay \$72.50 each month for 6 months. What is the percent increase from the original cost of the television to the cost of the television using the payment plan?

- A. 6% B. 12% C. 58% D. 89%

54. Jeanette purchased a concert ticket on a web site. The original price of the ticket was \$75. She used a coupon code to receive a 20% discount. The web site applied a 10% service fee to the discounted price. Jeanette's ticket was less than the original price by what percent?

- A. 7% B. 10% C. 12% D. 28%

55. Every five years in March, the population of a certain town is recorded. In 1995, the town had a population of 4,500 people. From 1995 to 2000, the population increased by 15%. From 2000 to 2005, the population decreased by 4%. What was the town's population in 2005?

- A. 4,527 B. 4,968 C. 4,995 D. 5,382

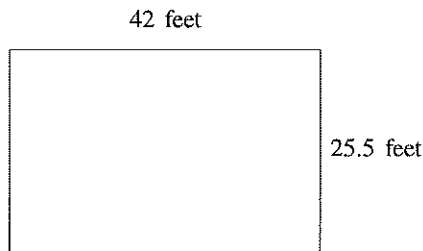
56. Last year 950 people attended a town's annual parade. This year 1,520 people attended. What was the percent increase in attendance from last year to this year?

- A. 37.5% B. 57.0% C. 60.0% D. 62.5%

57. A recycling plant processes an average of $\frac{1}{3}$ ton of glass each minute. At approximately what rate does the recycling plant process glass, in tons per day? (1 day = 24 hours)

- A. 20 B. 180 C. 480 D. 4,320

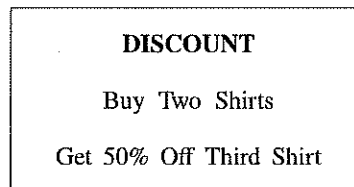
58. Wallpaper was applied to one rectangular wall of a large room. The dimensions of the wall are shown below.



If the total cost of the wallpaper was \$771.12, what was the cost, in dollars, of the wallpaper per square foot?

- A. \$0.61 B. \$0.72 C. \$1.39 D. \$1.65

59. A clothing store used the sign shown below to advertise a discount on shirts.



Ky wants to buy three shirts, which were originally priced \$49.96 each. The store will discount the price of the third shirt and then apply a 7.1% tax to the total cost of all three shirts. Including the tax, what will be the mean cost of each shirt?

- A. \$41.99 B. \$42.70 C. \$44.59 D. \$45.18

60. A company ordered 10 boxed lunches from a deli for \$74.50. Each boxed lunch cost the same amount. Which equation represents the proportional relationship between y , the total cost of the boxed lunches, and x , the number of boxed lunches?

A. $7.45x = y$

B. $\frac{7.45}{x} = \frac{10}{y}$

C. $74.50x = y$

D. $\frac{74.5}{x} = \frac{10}{y}$

61. A store purchased a DVD for \$12.00 and sold it to a customer for 50% more than the purchase price. The customer was charged a 7% tax when the DVD was sold. What was the customer's total cost for the DVD?

A. \$12.84

B. \$18.42

C. \$18.84

D. \$19.26

62. Bananas cost \$0.45 per pound. What equation is used to find C , the total cost of p pounds of bananas?

A. $C = 0.45p$

B. $C = p + 0.45$

C. $0.45C = p$

D. $0.45 + C = p$

63. The cost of oranges in a grocery store is directly proportional to the number of oranges purchased. Jerri paid \$2.52 for 6 oranges. If p represents the cost, in dollars, and n represents the number of oranges purchased, which equation best represents this relationship?

A. $p = 0.42n$

B. $p = 2.52n$

C. $p = 6n$

D. $p = 15.12n$

64. A store sold 650 bicycles last year. This year the store sold 572 bicycles. What is the percent decrease in the number of bicycles sold from last year to this year?

A. 12%

B. 14%

C. 78%

D. 88%

65. The label on a $1\frac{1}{2}$ -pound bag of wildflower seeds states that it will cover an area of 375 square feet. Based on this information, what is the number of square feet that 1 pound of wildflower seeds will cover?

A. $\frac{1}{250}$

B. 250

C. $562\frac{1}{2}$

D. 750

66. Julia's service charge at a beauty salon was \$72.60, before tax. The sales tax rate was 8%. If she added 20% of the amount before tax as a tip, how much did she pay for the service at the salon?

A. \$87.12

B. \$92.93

C. \$100.60

D. \$145.20

67. Last week Len spent \$18 to bowl 4 games. This week he spent \$27 to bowl 6 games. Len owns his bowling ball and shoes, so he only has to pay for each game that he bowls. If each of these bowling games costs the same amount of money, what is the constant of proportionality between the money spent and the number of games played?

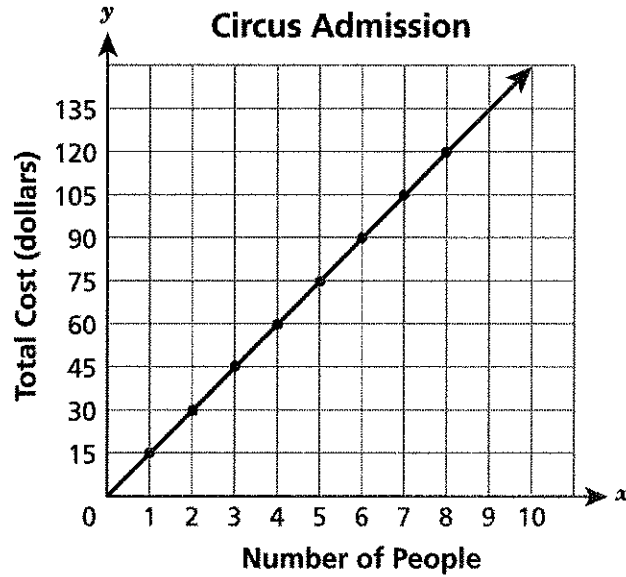
A. 1.5

B. 2.0

C. 4.5

D. 9.0

68. The graph below shows the relationship between the number of people in a group and the total cost of admission tickets for a circus.



What point on the graph represents the unit rate?

- A. (0, 0) B. (1, 15) C. (15, 1) D. (8, 120)

69. During a sale, a store offered a 40% discount on a particular camera that was originally priced at \$450. After the sale, the discounted price of the camera was increased by 40%. What was the price of the camera after this increase?

- A. \$252 B. \$360 C. \$378 D. \$450

70. Each sales associate at an electronics store has a choice of the two salary options shown below.

- \$115 per week plus 9.5% commission on the associate's total sales
- \$450 per week with no commission

The average of the total sales amount for each associate last year was \$125,000. Based on this average, what is the difference between the two salary options each year? (52 weeks = 1 year)

- A. \$4,262.11 B. \$5,545.00 C. \$10,956.90 D. \$11,525.00

71. A dealer paid \$10,000 for a boat at an auction. At the dealership, a salesperson sold the boat for 30% more than the auction price. The salesperson received a commission of 25% of the difference between the auction price and the dealership price. What was the salesperson's commission?

- A. \$750 B. \$1,750 C. \$3,250 D. \$5,500

72. Verda used a sensor to measure the speed of a moving car at different times. At each time, the sensor measured the speed of the car in both miles per hour and kilometers per hour. The table below shows her results.

RECORDED SPEEDS

Speed (miles per hour)	Speed (kilometers per hour)
11.0	17.699
26.0	41.834
34.0	54.706

Based on her results, which statement describes the relationship between m , the speed of the car in miles per hour, and k , the speed of the car in kilometers per hour?

- A. The relationship is proportional because the ratio of m to k is constant.
- B. The relationship is not proportional because the ratio of m to k is constant.
- C. The relationship is proportional because the difference between m and k is constant.
- D. The relationship is not proportional because the difference between m and k is constant.

73. Bonnie deposits \$70.00 into a new savings account.

- The account earns 4.5% simple interest per year.
- No money is added or removed from the savings account for 3 years.

What is the total amount of money in her savings account at the end of the 3 years?

- A. \$9.45 B. \$79.45 C. \$94.50 D. \$164.50

74. Charis invested \$140. She earned a simple interest of 3% per year on the initial investment. If no money was added or removed from the investment, what was the amount of interest Charis received at the end of two years?

- A. \$4.20 B. \$6.00 C. \$8.40 D. \$12.60

75. Lehana and Marty each opened a savings account with a deposit of \$100.

- Lehana earned 2.5% simple interest per year.
- Marty earned 2% simple interest per year.
- Neither of them made additional deposits or withdrawals.

How much more did Lehana receive in interest than Marty after three years?

- A. \$0.50 B. \$1.50 C. \$5.00 D. \$15.00