$\qquad$
$\qquad$
$\qquad$

## 6A

## Short Answer

Solve the equation.

1. $-5 d-24=-4(d+6)-d$

Write the inequality for the graph.
2.

3.

4.

5.


Solve the inequality.
6. $p+7<-3$

Solve the inequality. Graph the solution on a number line.
7. $-44 \leq 4 a$
8. A factory produces 10,000 boxes of granola bars a day. Each box contains 12 bars. If each bar contains 135 calories, how many calories are contained in a box?

Find each sum.
9. $34+(-9)$

Find each quotient.
10. $-56 \div(-14)$
11. Bananas cost $\$ 0.45$ per pound. How much will it cost to buy $\frac{4}{5}$ of a pound of bananas?

Find the quotient. Write the answer in simplest form.
12. $\frac{7}{15} \div \frac{3}{11}$
13. $2 \frac{1}{5} \div 5 \frac{1}{6}$

Find the least common multiple (LCM) of the set of numbers or monomials.
14. $6,4,12$
15. The formula for the area of a triangle is $\frac{1}{2} b h$. Find the area of the triangle with base $=5 \mathrm{~cm}$ and height $=8.6 \mathrm{~cm}$. Express your answer as a decimal.

Consider the following set of data:
$18.9,12.5,10.3,11.1,11.1,19.2,24.7,12.5,23.6,11.1,22.9,19.7$
16. What is the mean of this data? If necessary, round to the nearest tenth.

Express each ratio as a unit rate. Round to the nearest tenth, if necessary.
17. $\$ 575.28$ for 12 textbooks
18. Mr. Anderson is building a storage shed that is 14 feet long and 8 feet wide. Construct a scale drawing of the shed. Use a scale of $\frac{1}{4}$ inch $=2$ feet.

Use the percent proportion to solve each problem. Round to the nearest tenth.
19. 37.5 is $4 \%$ of what number.
20. A DVD player is on sale at a $25 \%$ discount. Find the sale price of the DVD player if it normally sells for \$299?

Find the percent of decrease. Round to the nearest tenth, if necessary.
21. from $\$ 207$ to $\$ 127$

Determine whether the relation is a function. Explain.
22.

23. The amount of sales tax varies directly with the cost of the purchase. If the sales tax is $\$ 2.40$ on a purchase of $\$ 40.00$, what would be the sales tax on a purchase of $\$ 60.50$ ?

State the slope and the y-intercept for the graph of the equation.
24. $y=4 x-5$
25. Replace the $\bigcirc$ with $<,>$, or $=$ to make a true statement.
$9.65 \bigcirc 9 \frac{1}{2}$
Fine the value of $x$ in the triangle. Then classify the triangle as acute, right, or obtuse.
26.


Find the distance between the pair of points. Round to the nearest tenth, if necessary.
27. $C(-1.5,-6.7), D(-7.4,0.5)$

Find the interquartile range of the data.
28. $88,87,80,73,86,88,73,67,80,79,71,85,55$

National Hockey League
Games Won, 2001-2002

| Easte | rn | Co | nfe | en |  |  | Western Conference |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  | 9 | 1 |  |  |  |  |  |  |  |
|  |  |  | 8 | 7 | 2 | 2 |  | 6 | 8 | 9 |  |  |  |
| 9 | 6 | 6 | 6 | 5 | 5 | 3 | 2 | 6 | 8 |  |  |  |  |
|  | 3 | 3 | 2 | 2 | 1 | 4 |  | 0 | 1 | 2 | 3 | 4 | 5 |
|  |  |  |  |  |  | 5 | 1 |  |  |  |  |  |  |
|  |  | $2=$ | 28 | win |  |  |  |  |  | $6=$ |  |  |  |

Source: The World Almanac and Book of Facts 2003
29. Find the median and range for the Eastern Conference wins.
30. Using nine coins, how can you make change for 85 cents that will NOT make change for a quarter?
31. A student goes to the library and reads books. The graph below shows the number of pages read by the student on different days of given week.


Write an equation that can be used to find the number of pages read by the student. Also find the number of pages read by the student on the 7th day.
32. The table shows the cost of hiring a baby-sitter.

| Hours | Cost |
| :---: | :---: |
| 1 | $\$ 8$ |
| 3 | $\$ 24$ |
| 5 | $\$ 40$ |
| 7 | $\$ 56$ |

Using the pattern in the table, write an equation representing the relationship between the number of hours for which the baby-sitter is hired and the cost of the baby-sitter. Draw the graph of the pattern. What will be the cost of a baby-sitter for 9 hours?
33. A wallet has 10 dimes and 10 quarters in it. Write and solve an expression using the Distributive Property to find the total amount of money in dollars.
34. Mount Bona is the highest mountain among all the mountains shown in the table below. The table shows the difference in heights of various mountains compared to Mount Bona.

| Name of Mountain | Difference in Height <br> (ft) |
| :--- | :---: |
| Mount Sanford | 263 |
| Mount Churchill | 862 |
| Mount Rainier | 2090 |
| Mount Augusta | 2430 |

a. Both Mount Sanford and Mount Churchill are shorter than Mount Bona. Write an equation that will help you find how much shorter Mount Churchill is than Mount Sanford.
b. How much closer in height is Mount Augusta to Mount Bona than Mount Rainier is to Mount Bona?
35. Alex, Eve, Edward, and Nicole participated in a relay race competition. The table below shows the distance traveled by each of them in the race.

| Name | Distance (mi) |
| :--- | :---: |
| Alex | $?$ |
| Eve | 17 |
| Edward | $?$ |
| Nicole | 20 |

All of them covered a total distance of 152 miles. If Edward ran twice the distance that both Alex and Eve ran, find the distance covered by Alex and Edward.
36. The sides of a rectangular room have the ratio $3: 5$. If its perimeter is 48 feet, find the length and width of the rectangular room.
37. A train left a station at noon. Two hours later, another train left the same station, in the same direction of the first train. At 6:00 p.m., the two trains were 420 miles apart. Find the speed of each train, if the first train traveled 20 miles per hour faster than the second train.
38. Nick and his three friends painted a garage. One of the friends took $\frac{1}{5}$ of the total time, another took $\frac{2}{5}$, and the third friend took $\frac{1}{5}$ of the total time. What was the total fraction of time taken by Nick's three friends?
39. According to a survey, students spend $33 \%$ of their time sleeping, one-fourth of their time in class, 0.08 of their time eating and $34 \%$ of their time in other activities. Calculate the percentage of time spent in class and eating. In which activity does the student spend the most time?

To keep from paying service charges, Jeana has to keep a minimum balance of $\$ 200$ in her bank account. She deposits $\$ 50$ in her account every month.
40. Find the balance in her account after six months if she withdraws $\$ 100$ from her account at the end of the sixth month.
41. A triangle has two equal sides, and the third side of the triangle is 5 feet shorter than the first side. If the perimeter of the triangle is 40 feet, find the dimensions of each side.
42. A painter takes at least 40 minutes to complete a painting. Write and solve an inequality that can be used to find the number of paintings he can make if he paints for 6 hours.
43. If $\triangle A B C \cong \triangle E F G$, find the measures of the missing sides and angles.

44. Every pail of plaster covers 80 square feet of ceiling. Find the number of pails of plaster needed to cover the ceiling of a room shown below.


The table below shows the sales of two different ice cream flavors on a Saturday.

| Flavor | Units Sold |
| :--- | :---: |
| Vanilla | 40 |
| Strawberry | 25 |

45. The number of units of strawberry ice cream sold Sunday was no more than the number sold Saturday. Write an inequality to represent the number of units of strawberry ice cream sold Sunday.
46. To make a profit, a shopkeeper has to sell more than 200 items in a month. If he sold 30 items in the first week of the month, write and solve an inequality to determine the number of items needed to be sold in the remaining weeks to earn profit.
47. The sum of any two sides of a triangle is always greater than the third side. Write an inequality to show this condition if one side of the triangle measures 6 feet, the second side measures $x$ feet, and the third side measures 8 feet.
48. Leo spends 25 cents every time he sends a text message from his cell phone. If he has a balance of $\$ 20$, write and solve an inequality to find how many messages he can send.
49. a. David is practicing for a marathon and runs 6 miles per hour each morning. If he wants to cover a distance of at least 18 miles, write and solve an inequality to find how long he should run.
b. If he covered at least 20 miles in 4 hours, find his speed.
50. One-sixth of the difference of a number and eight is less than twenty. For what numbers is this true?

## 6A

## Answer Section

## SHORT ANSWER

1. ANS:
all numbers
Use the Distributive Property to evaluate the expressions involving parentheses. Group the variables on one side of the equation and solve.

PTS: 1 DIF: Average REF: Lesson 8-2
OBJ: 8-2.2 Identify equations that have no solution or an infinite number of solutions.
NAT: NA $2 \mid$ NA $6 \mid$ NA 3
TOP: Identify equations that have no solution or an infinite number of solutions.
KEY: Equations | Solutions | Infinite Solutions
2. ANS:
$t<0$

|  | Open Circle | Closed Circle |
| :--- | :---: | :---: |
| Arrow Points Left | $<$ | $\leq$ |
| Arrow Points Right | $>$ | $\geq$ |

PTS: 1 DIF: Basic REF: Lesson 8-3 OBJ: 8-3.1 Write inequalities.
NAT: NA $1 \mid$ NA $8 \mid$ NA $2 \quad$ STA: IL 8B | IL 8D
TOP: Write inequalities. KEY: Inequalities | Write Inequalities
3. ANS:
$u \leq 6$

|  | Open Circle | Closed Circle |
| :--- | :---: | :---: |
| Arrow Points Left | $<$ | $\leq$ |
| Arrow Points Right | $>$ | $\geq$ |

PTS: 1 DIF: Basic REF: Lesson 8-3 OBJ: 8-3.1 Write inequalities.

NAT: NA $1 \mid$ NA $8 \mid$ NA 2
TOP: Write inequalities.

STA: IL 8B \| IL 8D
KEY: Inequalities | Write Inequalities
4. ANS:
$w \leq-10$

|  | Open Circle | Closed Circle |
| :--- | :---: | :---: |
| Arrow Points Left | $<$ | $\leq$ |
| Arrow Points Right | $>$ | $\geq$ |

PTS: 1 DIF: Average
REF: Lesson 8-3 OBJ: 8-3.1 Write inequalities.
NAT: NA $1 \mid$ NA $8 \mid$ NA 2
STA: IL 8B \| IL 8D
TOP: Write inequalities.
KEY: Inequalities | Write Inequalities
5. ANS:
$c \geq 125$

|  | Open Circle | Closed <br> Circle |
| :--- | :---: | :---: |
| Arrow Points Left | $<$ | $\leq$ |
| Arrow Points Right | $>$ | $\geq$ |

PTS: 1 DIF: Basic REF: Lesson 8-3 OBJ: 8-3.1 Write inequalities.
NAT: NA $1 \mid$ NA $8 \mid$ NA 2
STA: IL 8B | IL 8D
TOP: Write inequalities.
KEY: Inequalities | Write Inequalities
6. ANS:
$p<-10$
Subtract the constant on the left from both sides of the inequality to solve.

PTS: 1 DIF: Average REF: Lesson 8-4
OBJ: 8-4.2 Solve equations by using the Subtraction Properties of Inequality.
NAT: NA $1 \mid$ NA $6 \mid$ NA $8 \mid$ NA $2 \quad$ STA: IL 8C. $1 \mid$ IL 8C. $2 \mid$ IL 8D | IL 8D. 1
TOP: Solve inequalities by using the Subtraction Property of Inequality.
KEY: Solve Inequalities | Subtraction Property
7. ANS:
$-11 \leq a$


Divide both sides of the equation by the coefficient of $a$ to solve.

PTS: 1 DIF: Average REF: Lesson 8-5
OBJ: 8-5.2 Solve inequalities by dividing by a positive number.
NAT: NA $1 \mid$ NA $6 \mid$ NA $2 \quad$ STA: IL 8C. $1 \mid$ IL 8C. $2 \mid$ IL 8D | IL 8D. 1
TOP: Solve inequalities by dividing by a positive number. KEY: Solve Inequalities | Division
8. ANS:

1620 calories
Multiply the number of bars in one box by the number of calories in one bar to find the total number of calories in one box.

PTS: 1 DIF: Average REF: Lesson 1-1
OBJ: 1-1.2 Choose an appropriate method of computation. NAT: NA $1 \mid$ NA 6
STA: IL 7C | IL 6C. 1 TOP: Choose an appropriate method of computation.
KEY: Computation | Solve Problems
9. ANS:

25
If the signs are different, subtract the absolute values of each integer. Then give the sum the sign of the integer with the bigger absolute value. If the signs are the same, add the integers and give the sum the same sign the integers have.

PTS: 1 DIF: Basic REF: Lesson 2-2 OBJ: 2-2.1 Add two integers.
NAT: NA $1 \mid$ NA $6 \mid$ NA $2 \quad$ STA: IL 6C $\mid$ IL 6C. $1 \mid$ IL 6B
TOP: Add two integers.
KEY: Integers | Add Integers
10. ANS:

4
Find the quotient of the absolute values of the two integers. If the signs are the same the quotient is positive; if they are different the product is negative.

PTS: 1 DIF: Basic REF: Lesson 2-5 OBJ: 2-5.1 Divide integers.
NAT: NA $1 \mid$ NA $6 \mid$ NA 2
STA: IL 6C | IL 6C. 1 | IL 6B
TOP: Divide integers.
KEY: Integers | Divide Integers
11. ANS:
\$0.36
Multiply the cost per pound by $\frac{4}{5}$ to get the total cost.

PTS: 1 DIF: Average REF: Lesson 5-3
OBJ: 5-3.2 Use dimensional analysis to solve problems. NAT: NA $1 \mid$ NA $3 \mid$ NA $4 \mid$ NA $5 \mid$ NA 2
STA: IL 6C. 1 TOP: Use dimensional analysis to solve problems.
KEY: Solve Problems | Dimensional Analysis
12. ANS:
$1 \frac{32}{45}$
Using the first fraction and the multiplicative inverse of the second fraction, multiply the numerators and multiply the denominators and then simplify.

PTS: 1 DIF: Basic REF: Lesson 5-4
OBJ: 5-4.1 Divide positive and negative fractions using multiplicative inverses.
NAT: NA $1 \mid$ NA $3 \mid$ NA $4 \mid$ NA $5 \mid$ NA 2
STA: IL 6C.1 | IL 6B
TOP: Divide fractions using multiplicative inverses.
KEY: Fractions | Divide Fractions | Multiplicative Inverse
13. ANS:
$\frac{66}{155}$
For each mixed number, convert to an improper fraction by multiplying the denominator by the whole number and adding the numerator. Next, find the multiplicative inverse of the second fraction. Then, multiply the numerators and multiply the denominators and simplify.

PTS: 1 DIF: Average REF: Lesson 5-4
OBJ: 5-4.1 Divide positive and negative fractions using multiplicative inverses.
NAT: NA $1 \mid$ NA $3 \mid$ NA $4|N A 5| N A 2$
STA: IL 6C. 1 | IL 6B
TOP: Divide fractions using multiplicative inverses.
KEY: Fractions | Divide Fractions | Multiplicative Inverse
14. ANS:

12
Find the lowest number which each of the numbers divides into evenly.
PTS: 1 DIF: Basic REF: Lesson 5-6
OBJ: 5-6.1 Find the least common multiple of two or more numbers.

TOP: Find the least common multiple of two or more numbers.
KEY: Least Common Multiple
15. ANS:
$21.5 \mathrm{~cm}^{2}$
Convert $\frac{1}{2}$ to 0.5 .
$(0.5)(5)(8.6)=21.5$
PTS: 1 DIF: Average REF: Lesson 5-8
OBJ: 5-8.2 Solve problems with rational numbers. NAT: NA $1 \mid$ NA $6 \mid$ NA 2
STA: IL 8C.1 | IL 8D | IL 6B TOP: Solve problems with rational numbers.
KEY: Solve Problems | Rational Numbers
16. ANS:
16.5

The mean is the sum of the data divided by the number of items in the data set.
PTS: 1 DIF: Average REF: Lesson 5-9
OBJ: 5-9.1 Use the mean as a measure of central tendency. NAT: NA $1 \mid$ NA $5 \mid$ NA $6 \mid$ NA 4
STA: IL 10A TOP: Use the mean as a measure of central tendency.
KEY: Mean | Measure of Central Tendency
17. ANS:
$\$ 47.94$ per textbook
When a rate is simplified so that it has a denominator of 1 , it is called a unit rate.
PTS: 1 DIF: Average REF: Lesson 6-1 OBJ: 6-1.2 Determine unit rates.
NAT: NA $1 \mid$ NA $4 \mid$ NA $9 \mid$ NA $10 \mid$ NA $2 \quad$ TOP: Determine unit rates.
KEY: Unit Rates
18. ANS:


To construct a scale drawing of an object, use the actual measurements of the object and the scale to which the object is to be drawn to find the measurements of the drawing.

PTS: 1 DIF: Average REF: Lesson 6-4 OBJ: 6-4.2 Construct scale drawings.
NAT: NA $1 \mid$ NA $4 \mid$ NA $6 \mid$ NA $10 \mid$ NA $2 \quad$ STA: IL 9B. $1 \mid$ IL 7C. 5
TOP: Construct scale drawings. KEY: Scale Drawings | Construct Scale Drawings
19. ANS:
937.5

In a percent proportion, one of the numbers, called the part, is being compared to the whole quantity, called the base. The other ratio is the percent, written as a fraction, whose base is 100 .

PTS: 1 DIF: Average REF: Lesson 6-6
OBJ: 6-6.1 Use the percent proportion to solve problems. NAT: NA $1 \mid$ NA $6 \mid$ NA $7 \mid$ NA $8 \mid$ NA 2 STA: IL 6D | IL 6D.2| IL 6D. 1 TOP: Use the percent proportion to solve problems.
KEY: Percent Proportion | Solve Problems
20. ANS:
\$224.25
The percent equation can be used to solve problems involving discount and interest. Discount is the amount by which the regular price of an item is reduced.

PTS: 1 DIF: Average REF: Lesson 6-8
OBJ: 6-8.2 Solve real-life problems involving discount and interest.
NAT: NA $1 \mid$ NA $6 \mid$ NA $9 \mid$ NA $10 \mid$ NA $2 \quad$ STA: IL 6D | IL 6D. 2
TOP: Solve real-life problems involving discount and interest.
KEY: Discount Problems | Interest Problems
21. ANS:
38.6\% decrease

A percent of change tells the percent an amount has increased or decreased in relation to the original amount. Subtract to find the amount of change. Write a ratio that compares the amount of change to the original amount. Express the ratio as a percent.

PTS: 1 DIF: Average REF: Lesson 6-9 OBJ: 6-9.2 Find percent of decrease.
NAT: NA $1 \mid$ NA $3 \mid$ NA $9 \mid$ NA $10 \mid$ NA $2 \quad$ STA: IL 6D | IL 6D. 2
TOP: Find percent of decrease. KEY: Percents | Percent of Decrease
22. ANS:

Yes, each $x$-value is paired with exactly one $y$-value.
A function is a special relation in which each member of the domain is paired with exactly one member of the range.

PTS: 1 DIF: Basic REF: Lesson 7-1
OBJ: 7-1.1 Determine whether relations are functions. NAT: NA 2
STA: IL 8A TOP: Determine whether relations are functions.
KEY: Relations | Functions
23. ANS:
\$3.63
A rate of change is a relationship such that as $x$ increases in value, $y$ increases or decreases at a constant rate $k . y=k x$, where $k \neq 0$.

PTS: 1 DIF: Average REF: Lesson 7-3
OBJ: 7-3.2 Solve problems involving rates of change.
NAT: NA $2 \mid$ NA $6 \mid$ NA $9 \mid$ NA $10 \mid$ NA 3
TOP: Solve problems involving rates of change. KEY: Solve Problems | Rates of change
24. ANS:

4; - 5
All equations written in the form $y=m x+b$, where $m$ is the slope and $b$ is the $y$-intercept are linear equations in slope-intercept form.

PTS: 1 DIF: Basic REF: Lesson 7-6
OBJ: 7-6.1 Determine slopes and y-intercepts of lines. NAT: NA $2 \mid$ NA $10 \mid$ NA 6
STA: IL 8B | IL 8B. 3 TOP: Determine slopes and y-intercepts of lines.
KEY: Slope | y-intercept
25. ANS:
$9.65>9 \frac{1}{2}$
Express each number as a decimal. Then compare the decimals.
PTS: 1 DIF: Average REF: Lesson 9-2
OBJ: 9-2.2 Compare numbers in the real number system. NAT: NA $1 \|$ NA 2
STA: IL 6A.2|IL 6A TOP: Compare numbers in the real number system.
KEY: Real Numbers | Compare Real Numbers
26. ANS:
$83^{\circ}$, acute
The sum of the measures of the angles of a triangle is $180^{\circ}$.
PTS: 1 DIF: Basic REF: Lesson 9-3
OBJ: 9-3.1 Find the missing angle measure of a triangle. NAT: NA $3 \mid$ NA $6 \mid$ NA 4
STA: IL 9A | IL 9A. 3 TOP: Find the missing angle measure of a triangle.
KEY: Triangles | Angle Measure | Missing Measures
27. ANS:
9.3

The distance $d$ between two points with coordinates $\left(x_{1}, y_{1}\right)$ and $\left(x_{2}, y_{2}\right)$, is given by
$d=\sqrt{\left(x_{2}-x_{1}\right)^{2}+\left(y_{2}-y_{1}\right)^{2}}$.

PTS: 1 DIF: Average REF: Lesson 9-5
OBJ: 9-5.1 Use the Distance Formula to determine lengths on a coordinate plane.
NAT: NA $1 \mid$ NA $3 \mid$ NA $4 \mid$ NA $7 \mid$ NA $2 \quad$ STA: IL 9A | IL 9A. 5
TOP: Use the Distance Formula to determine lengths on a coordinate plane.
KEY: Distance Formula | Coordinate Plane
28. ANS:
14.5

The interquartile range is the range of the middle half of a set of data. It is the difference between the upper quartile and the lower quartile.

PTS: 1 DIF: Average REF: Lesson 12-2 OBJ: 12-2.2 Find interquartile range.
NAT: NA $5 \mid$ NA $9 \mid$ NA $6 \quad$ STA: IL 10A.1 | IL 10A
TOP: Find the interquartile range of a set of data. KEY: Interquartile Range | Data
29. ANS:

36; 24
The range of a set of data is the difference between the greatest and the least values of the set. The median of a set of data is the middle number of the ordered data, or the mean of the middle two numbers.

PTS: 1 DIF: Average REF: Lesson 12-2
OBJ: 12-2.3 Use measures of variation to interpret and compare data.
NAT: NA 5 |NA 9 |NA 6 STA: IL 10A. $1 \mid$ IL 10A
TOP: Use measures of variation to interpret and compare data.
KEY: Measures of Variation | Interpret Data | Compare Data
30. ANS:

3 quarters, 1 nickel, 5 pennies

3 quarters, 1 nickel, and 5 pennies add up to 85 cents and meet all the requirements.

PTS: 1 DIF: Basic REF: Lesson 1-1 OBJ: 1-1.3 Solve multi-step problems.
TOP: Solve multi-step problems. KEY: Multi-step | Problem Solving
31. ANS:
$n=3+d$, where $d$ represents the number of pages read by a student, $n$ represents the number of days; 10 pages

Write an equation using variables, which will represent relationship between number of pages and days. Use the equation to find the number of pages read.

PTS: 1 DIF: Average
TOP: Solve multi-step problems.

REF: Lesson 1-6 OBJ: 1-6.3 Solve multi-step problems.
KEY: Multi-step | Problem Solving
32. ANS:
$c=8 t$, where $t$ is the number of hours for which the baby-sitter is hired and $c$ is the cost.

$\$ 72$
Read the table carefully. Find a relationship between the number of hours and the cost of the baby-sitter. Plot points on the graph by having hours on the $x$-axis and cost on the $y$-axis. Use the relationship to find the cost for nine hours.

PTS: 1 DIF: Advanced REF: Lesson 1-6 OBJ: 1-6.3 Solve multi-step problems. TOP: Solve multi-step problems. KEY: Multi-step | Problem Solving
33. ANS:
$10 \times(\$ 0.10+\$ 0.25)=(10 \times \$ 0.10)+(10 \times \$ 0.25)=\$ 1.00+\$ 2.50=\$ 3.50$

Read each statement carefully and write the algebraic expression according to the given information. Solve the written expression to find the required answer.

PTS: 1 DIF: Average REF: Lesson 3-1 OBJ: 3-1.3 Solve multi-step problems.
TOP: Solve multi-step problems. KEY: Multi-step | Problem Solving
34. ANS:
a. $x+263=862$
b. 340 ft .

Write the algebraic equation according to the given information. Solve the written equation to find the required answer.

PTS: 1 DIF: Advanced
TOP: Solve multi-step problems.
REF: Lesson 3-3 OBJ: 3-3.3 Solve multi-step problems. KEY: Multi-step | Problem Solving
35. ANS:

Distance covered by Alex is 27 miles.
Distance covered by Edward is 88 miles.

Read each statement carefully and write the algebraic equation according to the given information. Solve the written equation to find the required answer.

PTS: 1 DIF: Advanced REF: Lesson 3-6 OBJ: 3-6.3 Solve multi-step problems. TOP: Solve multi-step problems. KEY: Multi-step | Problem Solving
36. ANS:

9 feet, 15 feet
The perimeter of a rectangle is found by adding the measurements of all four sides together. Use this definition to solve the question.

PTS: 1 DIF: Average REF: Lesson 3-8 OBJ: 3-8.4 Solve multi-step problems. TOP: Solve multi-step problems. KEY: Multi-step | Problem Solving
37. ANS:
$170 \mathrm{mi} / \mathrm{hr} ; 150 \mathrm{mi} / \mathrm{hr}$

The formula for speed is $s=\frac{d}{t}$, where $s$ denotes the speed, $d$ denotes the distance, and $t$ denotes the time. Use this formula to solve the problem.

PTS: 1 DIF: Advanced REF: Lesson 3-8 OBJ: 3-8.4 Solve multi-step problems.
TOP: Solve multi-step problems.
KEY: Multi-step | Problem Solving
38. ANS:
$\frac{4}{5}$

Add the three fractions which already have the common denominator to get the answer.

PTS: 1 DIF: Average
TOP: Solve multi-step problems.

REF: Lesson 5-5 OBJ: 5-5.3 Solve multi-step problems. KEY: Multi-step | Problem Solving
39. ANS:
$25 \%, 8 \%$; Others

Write the decimal as a percent, multiply by 100 and add the percent symbol.
To write a fraction as a percent, write an equivalent fraction with a denominator of 100 . Then compare the percents to find the activity in which the students spend the maximum time.

PTS: 1 DIF: Average REF: Lesson 6-5 OBJ: 6-5.5 Solve multi-step problems. TOP: Solve multi-step problems. KEY: Multi-step | Problem Solving
40. ANS:
\$400

Find an equation representing the relation between the amount and the month, and then substitute the value of $x$ equal to 6 in the equation and subtract the amount withdrawn to solve the problem.

PTS: 1 DIF: Average REF: Lesson 7-7 OBJ: 7-7.4 Solve multi-step problems.
TOP: Solve multi-step problems. KEY: Multi-step | Problem Solving
41. ANS:
$15 \mathrm{ft}, 15 \mathrm{ft}, 10 \mathrm{ft}$

The perimeter of a triangle is the sum of its three sides.
Write an equation according to the given information. Solve the equation to get the answer.
PTS: 1 DIF: Average REF: Lesson 8-2 OBJ: 8-2.3 Solve multi-step problems.
TOP: Solve multi-step problems.
KEY: Multi-step | Problem Solving
42. ANS:
$\frac{2}{3} x \leq 6 ; x \leq 9 ;$ at most 9

Multiply the number of paintings, $x$, by the time the painter takes to complete a painting ( 40 minutes).
This product must be less than or equal to 6 .
Solve the inequality by dividing the constant on the left to both sides of the inequality.
PTS: 1 DIF: Advanced REF: Lesson 8-5 OBJ: 8-5.5 Solve multi-step problems. TOP: Solve multi-step problems. KEY: Multi-step | Problem Solving
43. ANS:
$f=10, d=9, e=60^{\circ}, c=30^{\circ}, b=5.5$

If two triangles are congruent, their corresponding sides are congruent and their corresponding angles are congruent.

PTS: 1 DIF: Advanced REF: Lesson 10-2 OBJ: 10-2.2 Solve multi-step problems. TOP: Solve multi-step problems.

KEY: Multi-step | Problem Solving

44. ANS:

2

The ceiling is in the shape of square and the area of a square is given by the formula $s \times s$, where $s$ denotes the side of the square. Calculate the area and divide it by 80 . Round the quotient to get the answer.

PTS: 1 DIF: Advanced REF: Lesson 10-6 OBJ: 10-6.4 Solve multi-step problems. TOP: Solve multi-step problems.

KEY: Multi-step | Problem Solving

45. ANS:
$x \leq 25$

The number of units of strawberry ice cream sold Saturday is 25 . On Sunday it must be less than or equal to 25 .

PTS: 1 DIF: Average REF: Lesson 8-3 OBJ: 8-3.3 Solve multi-step problems.
TOP: Solve multi-step problems.
KEY: Multi-step | Problem Solving
46. ANS:
$x+30>200 ; x>170$

Add the number of items sold in the first week (30) to the number of items sold in the remaining weeks, $x$. This sum must be greater than 200.
Solve the inequality by subtracting the constant on the left from both sides of the inequality.
PTS: 1 DIF: Advanced REF: Lesson 8-3 OBJ: 8-3.3 Solve multi-step problems.
TOP: Solve multi-step problems. KEY: Multi-step | Problem Solving
47. ANS:

Sample answer: $6+x>8$
Add the two sides of a triangle. This should be greater than the third side.
PTS: 1 DIF: Basic REF: Lesson 8-4 OBJ: 8-4.3 Solve multi-step problems.
TOP: Solve multi-step problems.
KEY: Multi-step | Problem Solving
48. ANS:
$\frac{1}{4} y \leq \$ 20 ; y \leq 80 ;$ Leo can send no more than 80 text messages.

Multiply the number of messages, $y$, by the amount spent ( 25 cents). This product must be less than $\$ 20$. Multiply both sides of the inequality by the number in the denominator to solve.

PTS: 1 DIF: Average REF: Lesson 8-5 OBJ: 8-5.5 Solve multi-step problems.
TOP: Solve multi-step problems.
KEY: Multi-step | Problem Solving
49. ANS:
a. $6 t \geq 18$; at least 3 hours
b. $x \leq \frac{20}{4}$; at least $5 \mathrm{mi} / \mathrm{hr}$

Multiply the number of hours, $t$, by the number of hours which David runs every morning ( 6 hours). This product must be greater than or equal to 18 .
Speed can be calculated by using the formula $\frac{\text { distance }}{\text { time }}$.
Solve the inequality by dividing the constant on the left to both sides of the inequality.

PTS: 1 DIF: Advanced REF: Lesson 8-5 OBJ: 8-5.5 Solve multi-step problems.
TOP: Solve multi-step problems. KEY: Multi-step | Problem Solving
50. ANS:
$\frac{1}{6}(x-8)<20 ; x<128$

First write the algebraic inequality by using appropriate variables, and then solve it.

PTS: 1 DIF: Basic
TOP: Solve multi-step problems.

REF: Lesson 8-6 OBJ: 8-6.2 Solve multi-step problems. KEY: Multi-step | Problem Solving

