7th Accelerated Math Pretest Study Guide

Please use Khan Academy for additional practice:

https://www.khanacademy.org/math/cc-sixth-grade-math

Quick Reference Sheet

INTEGERS AND RATIONAL NUMBERS

Add and Subtract Rational Numbers

- Adding:
  - When the signs are the same, add the integers and keep the same sign.
  - When the signs are different, subtract the integers and keep the sign of the integer with the greatest absolute value.
- Subtracting:
  - Keep the first number the same.
  - Change the subtraction sign to addition.
  - Change the second number to its opposite.
  - Follow the rules for addition.

Convert Fractions to Decimals

- Convert rational numbers to decimals using long division
- The numerator becomes the dividend.
- The denominator becomes the divisor.
- Represent a repeating decimal by placing a line over the number(s) that repeat.

Absolute Value

- Absolute value asks how far a number is from zero.
- The absolute value of a number is a positive number.
- An absolute value is indicated by this symbol : $|x|$

Multiply and Divide Rational Numbers

- Multiplying or dividing two integers with the SAME sign = positive product or quotient.
- Multiplying or dividing two integers with DIFFERENT signs = negative product or quotient.

Quick Reference Sheet

FRACTION DECIMAL CONVERSIONS

Convert Fractions to Decimals

The Steps:

- Convert rational numbers to decimals using long division
- The numerator becomes the dividend.
- The denominator becomes the divisor.
- Represent a repeating decimal by placing a line over the number(s) that repeat.

Example:

$$\frac{7}{8} = 8\overline{)7.000}\ 0.875$$

$$\underline{-64}$$

$$60$$

$$\underline{-56}$$

$$40$$

$$\underline{-40}$$

$$0$$

Convert Decimals to Fractions

The Steps:

- Convert decimals to fractions using place value.
- Write the decimal as a fraction based upon how you would say it. If the number extends to the tenths place, it will be a fraction with 10 as the denominator. If it extends to the hundredths place, it will be a fraction with 100 as the denominator, and so on.

Example:

$$0.46 = \text{"}\textit{fourty six hundredths}\text{"}$$

$$\frac{46}{100} = \frac{23}{50}$$

$$0.6 = \text{"}\textit{six tenths}\text{"}$$

$$\frac{6}{10} = \frac{3}{5}$$

Quick Reference Sheet

EXPRESSIONS AND EQUATIONS

Adding, Subtracting, Factoring and Expanding

- **Adding & Subtracting Expressions:**
  - Horizontal Method : Distribute the addition or subtraction sign to all terms in the second set of parentheses. Combine like terms and simplify
  - Vertical Method : Write the expressions vertically and line up the terms with variables and the constants. Add or subtract.

- **Factoring Expressions:**
  - Factoring is breaking a number or expression into numbers or expressions that can be multiplied together to get the original number or expression.
  - To factor 2y + 8 you would pull a 2 out of each term, resulting in 2(y + 4).

- **Expanding Expressions:**
  - The opposite of factoring is expanding.
  - Expanding is when you write an equivalent expression that does not contain parenthesis.
  - For example: Expand 3(2y + 6) = 6y + 18.

Properties

- **Associative Property**
  - $(a + b) + c = a + (b + c)$
  - $(a \cdot b) \cdot c = a \cdot (b \cdot c)$
- **Commutative Property**
  - $a + b + c = b + c + a$
  - $a \cdot b \cdot c = b \cdot c \cdot a$
- **Distributive Property**
  - $a \cdot (b + c) = a \cdot b + a \cdot c$
- **Identity Property**
  - $a \cdot 1 = a$ and $a + 0 = a$
- **Inverse Property**
  - $a \cdot \frac{1}{a} = 1$ and $a + {}^{-}a = 0$

Writing Expressions & Equations

1. Determine if you will be writing an expression or equation.
2. Identify the operation(s).
3. Define your variable.
4. Write the expression or equation.

Solving Equations

Step 1: Isolate the variable and coefficient.
Step 2: Eliminate the constant using inverse operations.
Step 3: Isolate the variable.
Step 4: Eliminate the coefficient using inverse operations.
Step 5: Check your answer.

Quick Reference Sheet

ADDING AND SUBTRACTING EXPRESSIONS

Adding Expressions

The Steps:

- **Horizontal Method** Distribute the addition sign to all terms in the second set of parentheses. Combine like terms and simplify
- **Vertical Method** Write the expressions vertically and line up the terms with variables and the constants. Add.

Horizontal Example:

$$(3x+4y-9)+(10+3x)$$

$$3x+4y-9+10+3x$$

$$(3x+3x)+(4y)+(-9+10)$$

$$6x+4y+1$$

Vertical Example:

$$(3x+4y-9)+(10+3x)$$

$$3x-9+4y$$

$$\underline{+3x+10}$$

$$6x+1+4y=6x+4y+1$$

Subtracting Expressions

The Steps:

- **Horizontal Method** Distribute the subtraction sign to all terms in the second set of parentheses. Combine like terms and simplify
- **Vertical Method** Write the expressions vertically and line up the terms with variables and the constants. Subtract.

Horizontal Example:

$$(3x+4y-9)-(10+3x)$$

$$3x+4y-9-10-3x$$

$$(3x-3x)+(4y)+(-9-10)$$

$$4y-19$$

Vertical Example:

$$(3x+4y-9)-(10+3x)$$

$$3x-9+4y$$

$$\underline{-3x-10}$$

$$-19+4y=4y-19$$

Quick Reference Sheet

SOLVING EQUATIONS

Solving Two-Step Equations

Step 1: Isolate the variable and coefficient.
Step 2: Eliminate the constant using inverse operations.
Step 3: Isolate the variable.
Step 4: Eliminate the coefficient using inverse operations.
Step 5: Check your answer.

Example: Basic Two-Step Equation

$$-4x+2=18$$
$$-2 \quad -2 \quad \leftarrow \text{Eliminate the constant.}$$
$$\frac{-4x}{-4} = \frac{16}{-4} \quad \leftarrow \text{Eliminate the coefficient.}$$
$$x=-4$$

Example: Fractional Coefficient

$$\tfrac{3}{4}x+2=8$$
$$-2 \quad -2 \quad \leftarrow \text{Eliminate the constant.}$$
$$\tfrac{3}{4}x=6$$
$$\bullet\tfrac{4}{3} \quad \bullet\tfrac{4}{3} \quad \leftarrow \text{Eliminate the coefficient. Remember your fraction rules!}$$
$$x=\tfrac{6}{1}\bullet\tfrac{4}{3}=\tfrac{24}{3}=8$$

Example: Multi Step Equation

$$3(2x-4)=24$$
$$6x-12=24 \quad \leftarrow \text{Simplify the variable side of the equation.}$$
$$+12 \quad +12 \quad \leftarrow \text{Eliminate the constant.}$$
$$\frac{6x}{6} = \frac{36}{6} \quad \leftarrow \text{Eliminate the coefficient.}$$
$$x=6$$

Quick Reference Sheet

INEQUALITIES

Graphing Solutions to Inequalities

- Greater than or equal to: 
- Less than or equal to: 
- Greater than: 
- Less than: 

Writing Inequalities

From a graph :

1. Identify the inequality symbol by looking at the dot and the direction of the arrow.
2. The variable goes on the side of the circle that has the arrow.
3. Write your inequality. Check it by substituting the answer back into the original inequality and solving.

From Descriptions :

1. Identify the key words that let you know which inequality symbol you will be using.
2. Identify the operation(s).
3. Define your variable.
4. Write the inequality.

Solving Inequalities

1. Isolate the variable and coefficient.
2. Use inverse operations to eliminate the constant.
3. Isolate the variable.
4. Use inverse operations to eliminate the coefficient.
5. Check your answer.

Flip Flop Inequalities

- **Variable on the Right Flip Flop**
  - The variable should always be on the left side of the inequality symbol.
  - If the variable is on the other side, you must flip the direction of the inequality symbol when you flop the variable to the other side.
- **Negative Coefficient Flip Flop**
  - A coefficient is the number being multiplied or divided with the variable.
  - If the coefficient of the variable is negative, you must flip the inequality symbol when you multiply or divide both sides of the inequality by the negative coefficient.

Quick Reference Sheet

PROPORTIONS, RATES, RATIOS & PERCENTS

Solving Proportions

- Read to understand what you need to find.
- Determine what you know.
- Set up a proportion.
- Solve the proportion.
- Check your answer.

Solving with Equations

- Cross multiply and set each product equal to one another.
- Divide both sides by the coefficient.

Discounts, Taxes & Tips

1. Find the amount of the discount, tax or tip by rewriting the percent as a decimal and multiplying by the original number.
2. Add or subtract the dollar amount of the discount/tax/tip from or to the original number.

Simple Interest

$$I = Prt$$

Finding Unit Rate

From tables:

1. Find the value of 1 in the left column. The number in the column to the right of the 1 is the unit rate.
2. If there is no 1 in the table, set up a proportion using another pair in the table and a variable over 1 and solve.

From graphs:

1. Find the point (1, x) on the line. This point is the unit rate.
2. If you can not clearly identify the coordinates of point (1, x) on the line, set up a proportion using another point on the line and a variable over 1 and solve

From equations:

1. In an equation, the coefficient of the variable (the number being multiplied by the variable) is the unit rate.
    - For example, y = 2x is telling us that y changes by 2 for each x.

In the real world:

1. Write the information you have been given as a ratio.
2. Either divide the numerator by the denominator or set up a proportion with the ratio equal to $\frac{x}{1}$ and solve.

Percent Change

$$\frac{New - Original}{Original} \cdot 100$$

Quick Reference Sheet

GEOMETRY

Angle Relationships

- Adjacent Angles: Angles that share a side.
- Complementary Angles: Angles that share a side and have a sum of 90°.
- Supplementary Angles: Angles that share a side and have a sum of 180°.
- Vertical Angles: Angles that share a vertex, but not a side.
- Parallel Lines: Two lines in a plane that never cross.
- Perpendicular Lines: Two lines in a plane that form a 90° angle at their intersection.

Circles

- Area:

$$A = \pi r^2$$

- Circumference:

$$C = 2\pi r$$

OR

$$C = \pi d$$

Constructing Triangles

- From side lengths:
  1. Verify that the side lengths will create a triangle.
  2. Using your ruler, draw a line segment the length of one of the given sides.
  3. Set the width of your compass equal to another side length.
  4. Place the tip of the compass on one of the end points of the segment you drew and draw an arc above the line segment.
  5. Set the width of your compass equal to the third and final side length.
  6. Place the tip of the compass on the other end point of the segment you draw and draw another arc above the line segment.
  7. Place a point at the intersection of the arcs.
  8. Use your ruler or protractor straight edge to connect this point with each end point of the original line segment.
- From angle measurements:
  1. Verify that the angle measurements will create a triangle (the sum is = 180°).
  2. Draw a straight line on your paper that is at least the length of half the base of your protractor.
  3. Use your protractor to draw one of the angles at one end of the line.
  4. Use your protractor to draw the second angle anywhere else on the line.
  5. The point where they cross at the top of the triangle should be the third given measurement.
- From two sides and an angle:
  1. Use a ruler to create a line segment where you want the base of your triangle to be.
  2. Construct an angle with the given measurement.
  3. Using your ruler, measure one of the given side lengths on the bottom arm of the angle. Mark off the length.
  4. Using your ruler, measure the second given side length on the top arm of the angle. Mark off the length.
  5. Use your ruler to connect the two marks you made on either arm.
- From two angles and a side:
  1. Use your ruler to measure out a line segment that is equal to the given side length.
  2. Set your protractor up on one end of segment and create an angle that is equal to the first given angle measurement.
  3. Set your protractor up on the other end of the segment and create an angle that is equal to the second given angle measurement.
  4. Place a point where the two lines created from the angle measurements cross.

Quick Reference Sheet

ANALYZING DATA

Measures of Variability

- Range: The difference between the highest and lowest numbers in a set of data.
- Median: The middle number in a set of data when all numbers are arranged numerically.
- Upper Quartile: The median of the upper half of a set of data.
- Lower Quartile: The median of the lower half of a set of data.
- Interquartile Range: The range of the middle half of a set of data.
- Outlier: A number in a set of data that is either much greater or smaller than the median.
    - To find an outlier - Multiply the interquartile range by 1.5. Add the product to the upper quartile and subtract it from the lower quartile. If any data points are outside this range, they are considered outliers.

Measures of Center

- Mean: The average number in a set of data.
    - Find the sum of all values in the set of data. Divide by the total number of values.
- Median: The middle value of a set of data when numbers are written in numerical order.
    - Arrange numbers in order from least to greatest. Identify the number in the middle. If there are two numbers, take the average of the two.
- Mode: The value that occurs most often in a set of data.
- Range: The difference between the smallest and largest values in a set of data.
    - Subtract the smallest value from the largest.

Random Samples

A random sample is one that provides everyone in the population with an equal chance of being selected. It also eliminates any opportunities for bias. Biased samples occur when only one group of people are selected to answer a question. For example, if you only ask soccer players if they like soccer, you may end up with a bias result.

Results from samples can be used to make predictions about entire populations by setting up and solving proportions.

Visual Overlap

Overlap can be strong, weak or not existent.

The steps for finding mean absolute deviation are:

1. Put the data set in numerical order.
2. Find the mean of the data set.
3. Make a table that shows how far each value is from the mean (this is called the mean absolute deviation.)
4. Find the sum of the absolute values of the deviations.
5. Divide the sum by the number of values in the data set.

Quick Reference Sheet

MEASURES OF CENTER AND VARIATION

Data : For all examples on this page, the following plant heights (in inches).

13, 15, 18, 22, 23, 19, 20, 18, 12, 22, 23

Mean

Mean - To find the mean you first find the sum of all pieces of data and then divide the sum by the number of pieces of data.

The sum of the plant heights is 205. 11 plants were measured. The mean is 205 ÷ 11 = 18.64 inches.

Mode

Mode - The value that occurs most often in a set of data. There can be no mode, one mode or more than one mode.

There are three modes for the plant data. 18, 22 and 23 occur twice, so all three would be the mode.

Outliers

Outliers - Multiply the IQR by 1.5. Add the product to the upper quartile and subtract it from the lower quartile.

7 x 1.5 = 10.5.
The outlier range is 4.5 – 25.5

Range

Range – To find the range you first find the highest and lowest number in the set. Then, subtract the lowest from the highest.

The maximum height is 23 inches, and the minimum is 12 inches. The range of plant heights is 23 – 12 = 11 inches.

Median

Median - To find the median you first put the numbers in numerical order and then find the digit in the middle. If there are two numbers in the middle, add the numbers and divide by two.

The plant heights in order from least to greatest are :

12, 13, 15, 18, 18, 19, 20, 22, 22, 23, 23

The median height is 19.

Quartiles

A numerical set of data has four quartiles. Quartile 1, Quartile 2 (Median), Quartile 3 and Quartile 4 (Maximum). Quartile 1 is the median of the first half of the data and Quartile 3 is the median of the second half of the data.

12, 13, 15, 18, 18, 19, 20, 22, 22, 23, 23

Minimum; Q1 = 15; Median; Q3 = 22; Maximum

Interquartile Range

Interquartile Range – To find the IQR you subtract the 1st quartile from the 3rd quartile.

Q3 is 22 and Q1 is 15. The interquartile range is 22 – 15 = 7 inches.

Quick Reference Sheet

PROBABILITY

Expressing Probability

- Probability is the **likelihood** that an even will happen.
- Probability is the **ratio** of the number of ways an event can occur to the number of possible outcomes.
- Probability can be expressed as a fraction, decimal or percent.
- **Impossible :** 0% chance of occurring.
- **Unlikely :** Up to a 50% chance of occurring.
- **Equally Likely :** 50% chance of occurring.
- **Likely :** Between 50 and 99% chance of occurring.
- **Certain :** 100% chance of occurring.

Compound Probability

- **Compound Event** – An event that consists of two or more simple events.
- **Mutually Exclusive Event** – Two events that cannot occur at the same time and have no common outcomes.
- **Overlapping Events** – Two or more events that have at least one common outcome.
- **Independent Events** – Events where the outcome of one event does not influence the other.
- **Dependent Events** – Events where the outcome of one event does influence the other.
- **Tree Diagrams** – A visual way to show all possible outcomes for a compound situation.
- **"And" events** = multiply the two probabilities.
    - "What is the probability of spinning a four and flipping a coin that lands on heads?"
- **"Or" events** = add the two probabilities.
    - "What is the probability of spinning a four or a two?"

Simulations

- A simulation is an experiment used to replicate the probability of an event happening or not happening.
- Simulations need to be carried out enough times to get a good sample and should mimic the real-life event in terms of the number of outcomes and the likelihood of each outcome occurring or not occurring.

Simple Probability

Number of Outcomes :

1. Identify the total possible number of outcomes for each event.
2. Add or multiply the number of outcomes for each event to find the total number of outcomes.

Finding Probability ~ The Steps :

1. Find the total number of outcomes.
2. Find the number of outcomes for one event.
3. Write a fraction with the event outcomes as the numerator and the total number of outcomes as the denominator.
4. Express the probability as a simplified fraction, decimal or percent.

Making Predictions ~ The Steps :

1. Write the theoretical probability as a fraction in simplest form.
2. Multiply the fraction by the number of trials.
3. Simplify if necessary.

Experimental vs. Theoretical :

- Experimental Probability : Probability determined by the results of an experiment.
- Theoretical Probability : The mathematical probability of an event occurring or not occurring.

RATIONAL NUMBER OPERATIONS
QUICK CHECK

Name _____

Date _____ Pd_____

1. A size 8 kids shoe measures $9\frac{2}{3}$ inches. If 5 pairs of size 8 kids shoes are lined end to end, then how many inches will they cover?

A. $36\frac{2}{3}$ B. $48\frac{1}{3}$ C. $77\frac{1}{3}$ D. 62

2. The record low temperature in Fargo, ND is -37°F. The record high is 109°F. What is the difference in the record high and the record low temperatures?

F. 72
G. 109
H. 33
J. 146

3. The local volleyball team hosts a concession stand to raise money. They can spend $120 to purchase popcorn, candy, and drinks. They purchase 95 bags of popcorn at $0.75 each and 35 bags of candy at $1.20 each. How much money does the volleyball team have left to spend on drinks?

A. $7.25 B. $15.50 C. $6.75 D. $20.25

4. Mrs. Sloan is purchasing 3.4 pounds of trail mix that costs $4.25 per pound. How much change will Mrs. Sloan receive if she gives the cashier $20.00

F. $14.45
G. $12.55
H. $5.55
J. $7.45

5. There are 36 people in a fitness studio. What fraction represents the number of people running?

- $\frac{3}{8}$ of the people lifted weights
- $\frac{1}{3}$ of the people did cross training
- the remaining people were running

A. $\frac{7}{24}$
B. $\frac{17}{24}$
C. $\frac{5}{12}$
D. $\frac{7}{8}$

1. Ⓐ Ⓑ Ⓒ Ⓓ
2. Ⓕ Ⓖ Ⓗ Ⓙ
3. Ⓐ Ⓑ Ⓒ Ⓓ
4. Ⓕ Ⓖ Ⓗ Ⓙ
5. Ⓐ Ⓑ Ⓒ Ⓓ
6. Ⓕ Ⓖ Ⓗ Ⓙ
7. Ⓐ Ⓑ Ⓒ Ⓓ
8. Ⓕ Ⓖ Ⓗ Ⓙ
9. Ⓐ Ⓑ Ⓒ Ⓓ
10. Use the grid below.

					.		
⊕	⓪	⓪	⓪	⓪		⓪	⓪
⊖	①	①	①	①		①	①
	②	②	②	②		②	②
	③	③	③	③		③	③
	④	④	④	④		④	④
	⑤	⑤	⑤	⑤		⑤	⑤
	⑥	⑥	⑥	⑥		⑥	⑥
	⑦	⑦	⑦	⑦		⑦	⑦
	⑧	⑧	⑧	⑧		⑧	⑧
	⑨	⑨	⑨	⑨		⑨	⑨

6. The weather report shows the 5 day forecast in St. Paul, Minnesota. What is the sum of the various temperatures over the period of five days?

DAY	TEMPERATURE (°F)
MONDAY	-6°
TUESDAY	3°
WEDNESDAY	4°
THURSDAY	-2°
FRIDAY	-1°

F. -4°

G. 2°

H. -3°

J. -2°

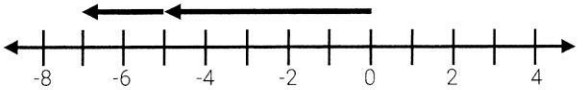
7. A 9 pound bag of sugar is being split into containers that hold $\frac{2}{3}$ of a pound. How many containers of sugar will the 9 pound bag create?

A. $13\frac{1}{2}$ B. $15\frac{1}{3}$ C. $13\frac{1}{3}$ D. 27

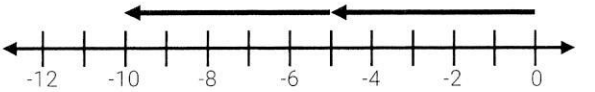
8. Which diagram correctly depicts the expression below?

$$-5 - 2$$

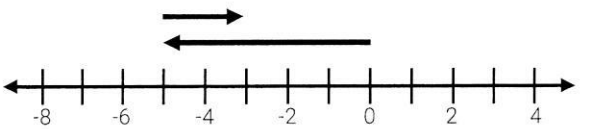
F.



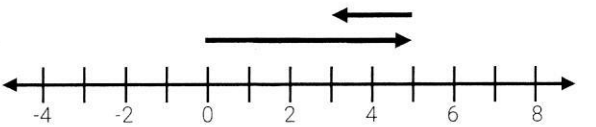
G.



H.



J.



9. A spool of ribbon has 18 feet on it. Pieces measuring 8 inches will be cut from the spool of ribbon. How many 8 inch segments will be cut from the spool of ribbon?

A. 10

B. 27

C. 2.25

D. 14.8

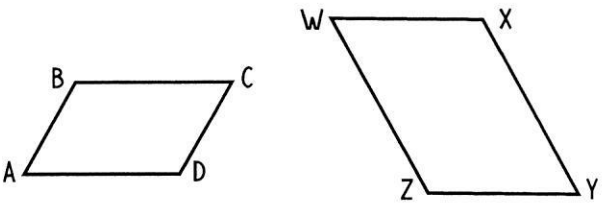
10. The parent teacher association is raising money for a new swing set. They need $682.56 to purchase the swing set and receive a $200.00 donation. The remaining amount will be equally divided among 8 different student groups to raise. How much money will each student group need to raise in order to purchase the swing set? Record your answer and fill in the bubbles on your answer document. Be sure to use the correct place value.

PROPORTIONALITY & SCALE DRAWINGS
QUICK CHECK

Name _____

Date _____ Pd_____

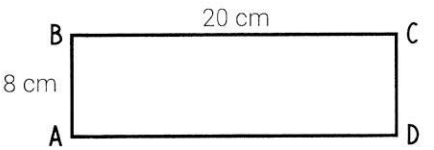
1. Figure ABCD is similar to figure WXYZ. Which proportion must be true for these figures?



A. $\frac{AB}{BC} = \frac{ZW}{WZ}$ B. $\frac{BD}{DC} = \frac{ZY}{XY}$ C. $\frac{AB}{DC} = \frac{WX}{ZY}$ D. $\frac{DA}{ZY} = \frac{CD}{XY}$

2. The rectangle is being reduced by a scale factor of $\frac{3}{4}$. What is the area of the new image?

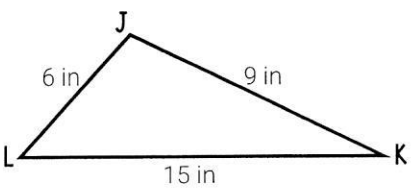
F. 180 cm^2
G. 90 cm^2
H. 160 cm^2
J. 75 cm^2

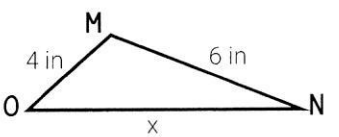


3. Micah made a scale model of the Empire State Building. The building has an actual height of 381 meters. Micah's model used a scale in which 1 cm represents 50 meters. What is the height in centimeters of Micah's model?

A. 3.2
B. 19.05
C. 36.83
D. 7.62

4. Triangle JKL is similar to triangle MNO. What is the perimeter of triangle MNO?



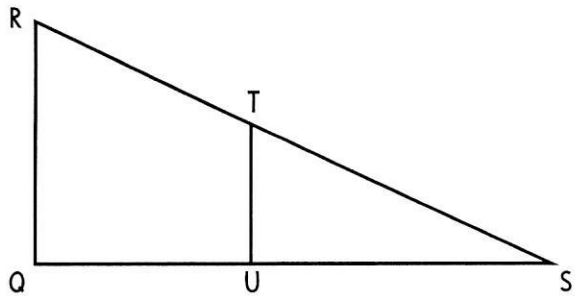


F. 9 in G. 27 in H. 20 in J. 11 in

					•		
⊕	⓪	⓪	⓪	⓪		⓪	⓪
⊖	①	①	①	①		①	①
	②	②	②	②		②	②
	③	③	③	③		③	③
	④	④	④	④		④	④
	⑤	⑤	⑤	⑤		⑤	⑤
	⑥	⑥	⑥	⑥		⑥	⑥
	⑦	⑦	⑦	⑦		⑦	⑦
	⑧	⑧	⑧	⑧		⑧	⑧
	⑨	⑨	⑨	⑨		⑨	⑨

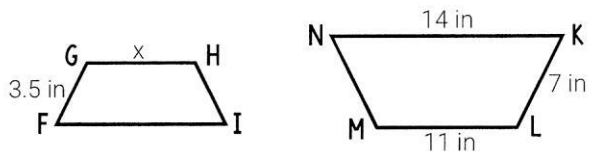
1. Ⓐ Ⓑ Ⓒ Ⓓ
2. Ⓕ Ⓖ Ⓗ Ⓙ
3. Ⓐ Ⓑ Ⓒ Ⓓ
4. Ⓕ Ⓖ Ⓗ Ⓙ
5. Ⓐ Ⓑ Ⓒ Ⓓ
6. Ⓕ Ⓖ Ⓗ Ⓙ
7. Ⓐ Ⓑ Ⓒ Ⓓ
8. Ⓕ Ⓖ Ⓗ Ⓙ
9. Ⓐ Ⓑ Ⓒ Ⓓ
10. Use the grid below.

5. The triangles shown below are similar. Which line segment corresponds to $\overline{RS}$?



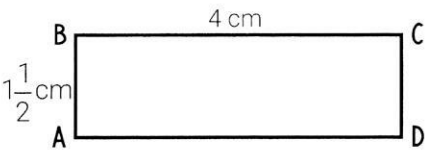
A. $\overline{RT}$
B. $\overline{TS}$
C. $\overline{OS}$
D. $\overline{UT}$

6. Trapezoid FGHI is similar to trapezoid KLMN. What is the length of GH?



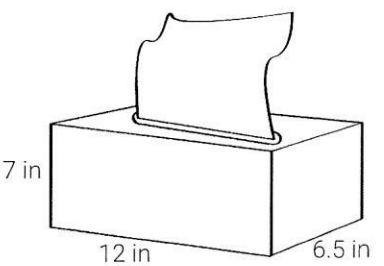
F. 8.5 in
G. 7 in
H. 6.75 in
J. 5.5 in

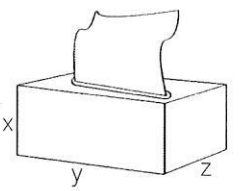
7. The rectangle below is dilated by a scale factor of 3.6 to create a new rectangle. Which of the following could be the dimensions of the new rectangle?



A. 14.4 cm x 5.4 cm
B. 5.4 cm x 7.2 cm
C. 7.2 cm x 1.8 cm
D. 14.4 cm x 7.2 cm

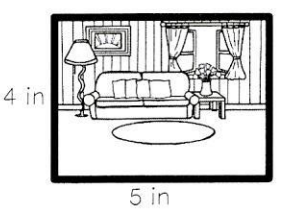
8. Two boxes of tissues are similar in shape and size. The larger tissue box is dilated by a scale factor of 0.5 to create the smaller tissue box. What are the measurements of the smaller tissue box?





F. y = 6 in, z = 3.5 in
G. x = 3.25 in, y = 6 in
H. x = 3.5 in, y = 6 in
J. y = 6 in, z = 2.75 in

9. The picture below is being enlarged by a scale factor of 2.5. How many inches of framing will the picture require?



A. 12.5 in
B. 20 in
C. 45 in
D. 65 in

10. A map uses the scale $\frac{3}{4}$ of an inch represents 3 miles. If the actual distance between two cities is 25 miles, then what is the length on the map?

RATES AND PERCENTS
QUICK CHECK

Name _____

Date _____ Pd_____

1. Todd plans to swim 18 laps in the pool. Each lap is 50 yards. So far Todd has swam 738 yards. What percentage of the total has Todd completed?

   A. 18%
   B. 82%
   C. 62%
   D. 77%

2. Jameson is seeking a loan with a simple interest rate of 3% per year. If he wants to borrow $8,000, then how much will he be charged in interest after 4 years?

   F. $1,280.00
   G. $960.00
   H. $240.00
   J. $9,600.00

3. A hot air balloon travels 18 miles in 3 hours. At this rate how many miles will the hot air balloon travel in $\frac{3}{4}$ hour?

   A. 4.5 B. 6 C. 11.5 D. 13.5

4. The price of a tablet was increased from $180 to $207. By what percentage was the price of the table increased?

   F. 33%
   G. 8%
   H. 27%
   J. 15%

5. Margie has a $50.00 budget to purchase a $45.00 pair of boots. If there is an 8% sales tax rate, then how much under budget will Margie be?

   A. $8.60
   B. $5.00
   C. $1.40
   D. $4.20

1.	Ⓐ Ⓑ Ⓒ Ⓓ
2.	Ⓕ Ⓖ Ⓗ Ⓙ
3.	Ⓐ Ⓑ Ⓒ Ⓓ
4.	Ⓕ Ⓖ Ⓗ Ⓙ
5.	Ⓐ Ⓑ Ⓒ Ⓓ
6.	Ⓕ Ⓖ Ⓗ Ⓙ
7.	Ⓐ Ⓑ Ⓒ Ⓓ
8.	Ⓕ Ⓖ Ⓗ Ⓙ
9.	Ⓐ Ⓑ Ⓒ Ⓓ

10. Use the grid below.

					.		
⊕	⓪	⓪	⓪	⓪		⓪	⓪
⊖	①	①	①	①		①	①
	②	②	②	②		②	②
	③	③	③	③		③	③
	④	④	④	④		④	④
	⑤	⑤	⑤	⑤		⑤	⑤
	⑥	⑥	⑥	⑥		⑥	⑥
	⑦	⑦	⑦	⑦		⑦	⑦
	⑧	⑧	⑧	⑧		⑧	⑧
	⑨	⑨	⑨	⑨		⑨	⑨

6. Edgar pays $67.86 for 7.8 pounds of fertilizer. What is the price per pound of fertilizer?

F. $6.98

H. $5.65

G. $8.70

J. $10.26

7. Mr. Mathewson increased the amount of weight he lifted each morning from 80 pounds to 90 pounds. By what percentage did Mr. Mathewson increase the amount of weight he lifted?

A. 12.5%

B. 10%

C. 15%

D. 18.5%

8. Margo missed 24.6% of the free throw shots in a season. During the season she took a total of 90 free throw shots. Which of the following is the best estimate of the number of free throw shots Margo missed?

F. 18

G. 12

H. 22

J. 25

9. A hospital bill is estimated to be $462.00. It ends up actually costing the patient $525.00. What is the percent of error in the bill?

A. 7%

B. 15%

C. 9%

D. 12%

10. Jameson pays $39.90 for 3.8 pounds of almonds. What is the price per pound of almonds? Record your answer and fill in the bubbles on your answer document. Be sure to use the correct place value.

PROPORTIONAL RELATIONSHIPS
QUICK CHECK

Name _____

Date _____ Pd_____

1.	Ⓐ	Ⓑ	Ⓒ	Ⓓ
2.	Ⓕ	Ⓖ	Ⓗ	Ⓙ
3.	Ⓐ	Ⓑ	Ⓒ	Ⓓ
4.	Ⓕ	Ⓖ	Ⓗ	Ⓙ
5.	Ⓐ	Ⓑ	Ⓒ	Ⓓ
6.	Ⓕ	Ⓖ	Ⓗ	Ⓙ
7.	Ⓐ	Ⓑ	Ⓒ	Ⓓ
8.	Ⓕ	Ⓖ	Ⓗ	Ⓙ
9.	Ⓐ	Ⓑ	Ⓒ	Ⓓ
10.	Ⓐ	Ⓑ	Ⓒ	Ⓓ

1. Burger Town sells cheeseburgers for $7.95 each plus an additional $1.00 for each extra topping, *t*. Which of the following equations best represents the cost, *c*, of a cheeseburger?

A. $c = 7.95t$

B. $c = 8.95t$

C. $c = 7.95t + 1.00$

D. $c = 7.95 + 1.00t$

2. A standard bathtub holds 60 gallons of water. A full tub drains 12 gallons per minute. Which of the following tables best represents the situation?

F.

X	1	2	4	5
Y	60	48	24	12

H.

X	1	3	4	5
Y	48	24	12	0

G.

X	0	2	4	5
Y	60	48	24	12

J.

X	1	2	3	4
Y	12	24	36	48

3. Which of the following represents the constant of proportionality in the table below?

MONTHS	2	4	6	8	10
TOTAL REVENUE	$190	$380	$570	$760	$950

A. k = 85

B. k = 95

C. k = 190

D. k = 125

4. The table below shows the relationship between the number of miles traveled, *x*, and the number of gallons of gas used, *y*. Which of the following equations best represents the relationship?

X	35	70	105	140	175
Y	1	2	3	4	5

F. $35 = 1x$

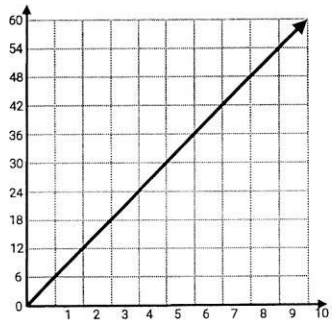
G. $y = \frac{1}{35}x$

H. $y = 35x$

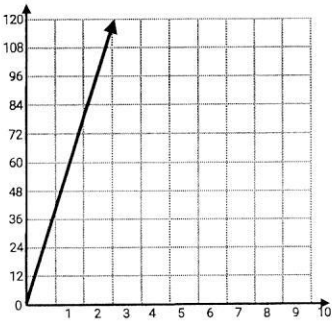
J. $y = 3.5x$

5. Which of the following graphs does **not** represent a proportional relationships?

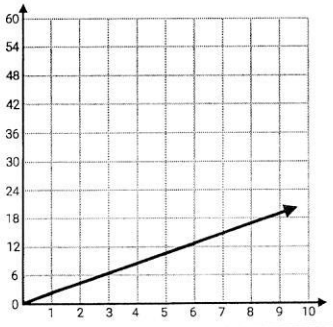
A.



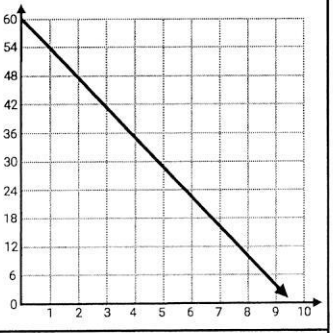
B.



C.



D.



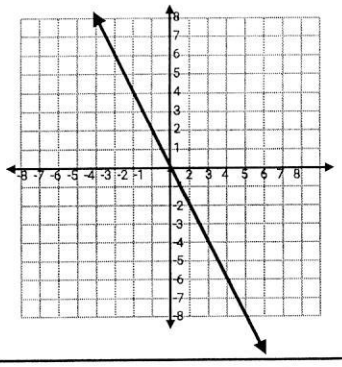
6. Which of the following equations best represents the relationship between x and y?

F. $y = -2x$

G. $y = 2x$

H. $y = 1/2x$

J. $y = -1/2x$



7. Marcy has earned 18 rewards points at the movie theater and will earn 3 points for each additional movie. Which equation represents the relationship between y, the total points, and x the number of movies?

A. $y = 18 + 3x$

B. $y = 3x - 18$

C. $y = 18 - 3x$

D. $y = 18x + 3$

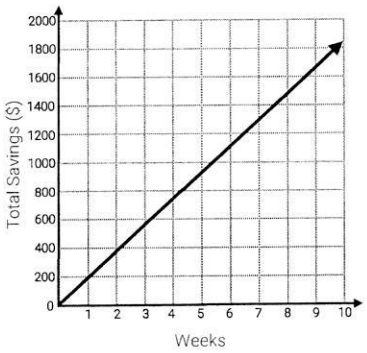
8. The graph shows the amount of money that Janice saves each week from her summer job. Which best represents the unit rate?

F. (0, 0)

G. (1, 200)

H. (200, 1)

J. (2, 200)



9. The table represents some points on a linear function. Which situation can be modeled by this function?

X	3	5	7	11
Y	228	380	532	836

A. The cost of buying *x* number of concert tickets for $76 each.

B. The number of pages *y* that can be read in 76 minutes.

C. The number of gallons of fuel *x* that can be used to travel 228 miles.

D. The amount of money spent from a savings account with *y* dollars.

10. Which of the following situations represents a proportional relationship?

F. A pizza is $7.95 plus $1.00 for each additional topping.

G. A pool drains at a rate of 90 gallons per hour.

H. A health club charges a $40.00 membership fee plus $25.00 per month.

J. A bank account begins with $350.00 and gains $30.00 per month.

EQUATIONS AND INEQUALITIES
QUICK CHECK

Name _____

Date _____ Pd_____

1. Ms. Hernandez is taking her children and their friends to the movies. She will pay $10 for her adult ticket and $7 for each child ticket. Ms. Hernandez does not want to spend more than $40. Which inequality can be used to find c, the number of child tickets Ms. Hernandez can purchase?

A. $7 + 10x > 40$ B. $10x - 7 \leq 40$ C. $10 + 7x > 40$ D. $10 + 7x \leq 40$

2. If $x = -3$, then which inequality is true?

F. $-5x + 2 \leq 12$ G. $3x - 7 \geq -16$ H. $14 + 2x < 5$ J. $\frac{1}{2}x + 6 > 11$

3. Which two expressions are equivalent?

A. $4(2 + x)$
$4 \cdot 2 + 2 \cdot x$

B. $4 + 2 + x$
$(4 + 2) + x$

C. $4 \cdot x + 2$
$4 \cdot (x + 2)$

D. $4 \div (2 - x)$
$4 - 2 \div x$

4. Which expression is equivalent to $9y - \frac{1}{2}(4y + 20)$?

F. $11y - 10$

G. $7y - 10$

H. $7y + 10$

J. $11y + 10$

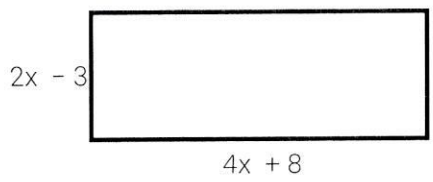
5. If the perimeter of the rectangle is 118 units, then what is the value of x?

A. $x = 9$

B. $x = 13$

C. $x = 18$

D. $x = 21$



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3. Ⓐ Ⓑ Ⓒ Ⓓ
4. Ⓕ Ⓖ Ⓗ Ⓙ
5. Ⓐ Ⓑ Ⓒ Ⓓ
6. Ⓕ Ⓖ Ⓗ Ⓙ
7. Ⓐ Ⓑ Ⓒ Ⓓ
8. Ⓕ Ⓖ Ⓗ Ⓙ
9. Ⓐ Ⓑ Ⓒ Ⓓ
10. Use the grid below.

					.		
⊕	0	0	0	0		0	0
⊖	1	1	1	1		1	1
	2	2	2	2		2	2
	3	3	3	3		3	3
	4	4	4	4		4	4
	5	5	5	5		5	5
	6	6	6	6		6	6
	7	7	7	7		7	7
	8	8	8	8		8	8
	9	9	9	9		9	9

6. A courier service charges a $5 pick up fee plus $0.15 per mile. The total charge to deliver a package was $7.85. How many miles did the courier service travel to deliver the package?

F. 52 miles G. 19 miles H. 85 miles J. 33 miles

7. Which situation best represents the equation below?

$$26 = 179 - 9k$$

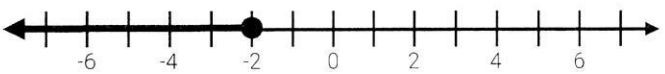
A. A pool of water has 26 gallons of water in it. It is filled at a rate of 9 gallons per minute, until there are 179 gallons.

B. A dairy farm has 179 cows in it. All of the cows are placed in groups of nine. There are 26 groups of cows.

C. There were 26 boxes for delivery at the post office one morning. By the end of the day, 179 boxes had been added to the delivery pile. The boxes will be delivered in groups of *k*.

D. A school assembly has 179 students in it. Nine teachers escort *k* number of students out of the assembly, until there are 26 students remaining.

8. The number line below represents the solution to which inequality?



F. $-2x + 7 \geq 8$

G. $7x + 11 \leq 4$

H. $6x - 9 \leq -21$

J. $-3x - 15 \leq -27$

9. A home improvement store advertises 60 square feet of flooring for $253.00, plus an additional $80.00 installation fee. What is the cost per square foot for the flooring?

A. $4.95

B. $5.25

C. $5.55

D. $6.06

10. What is the value of x in this equation?

$$-4x + 8 = 42$$

Use the bubbles in the answer section to mark your answer.

ANGLE RELATIONSHIPS
QUICK CHECK

Name _____

Date _____ Pd_____

1. A triangular garden is being formed with stones. The three sides measure 4 meters by 6 meters by 7 meters. Which of the following is a true statement about the side lengths of the triangle?

A. The side lengths will not form a triangle because $6 + 4 > 7$.
B. The side lengths will form a triangle because $4 + 6 < 7$.
C. The side lengths will not form a triangle because $7 + 4 < 6$.
D. The side lengths will form a triangle because $6 + 7 > 4$.

2. Two angles are supplementary to each other. If the first angle measures 58°, then which of the following could be the measure of the second angle?

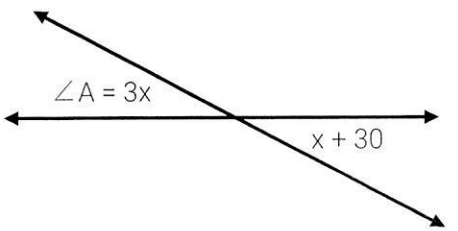
F. 122°
G. 32°
H. 58°
J. 90°

3. Which of the following will NOT produce a triangle?

A. angle measures of 33°, 67°, and 80°
B. side lengths of 5 inches, 5 inches, and 9 inches
C. angle measures of 90°, 60°, 30°
D. side lengths of 4 inches, 8 inches, and 12 inches

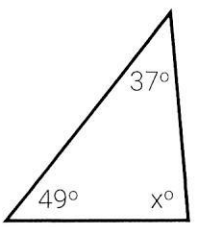
4. What is the measure of ∠A in the image shown below?

F. $m\angle A = 45°$
G. $m\angle A = 30°$
H. $m\angle A = 55°$
J. $m\angle A = 35°$



5. Triangle DEF is shown below. Which of the following equations could be used to find the value of x?

A. $x + 37 + 49 = 360$
B. $x + 86 = 180$
C. $180 - 90 = x$
D. $86 - x = 180$



					.		
⊕	0	0	0	0		0	0
⊖	1	1	1	1		1	1
	2	2	2	2		2	2
	3	3	3	3		3	3
	4	4	4	4		4	4
	5	5	5	5		5	5
	6	6	6	6		6	6
	7	7	7	7		7	7
	8	8	8	8		8	8
	9	9	9	9		9	9

1. Ⓐ Ⓑ Ⓒ Ⓓ
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3. Ⓐ Ⓑ Ⓒ Ⓓ
4. Ⓕ Ⓖ Ⓗ Ⓙ
5. Ⓐ Ⓑ Ⓒ Ⓓ
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7. Ⓐ Ⓑ Ⓒ Ⓓ
8. Ⓕ Ⓖ Ⓗ Ⓙ
9. Ⓐ Ⓑ Ⓒ Ⓓ
10. Use the grid below.

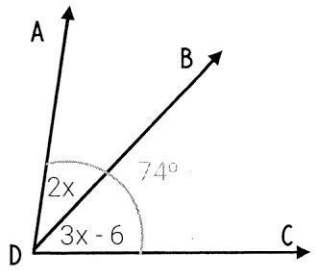
6. Angle ADB is adjacent to angle BDC. Which of the following is a true statement about the angles?

F. $\angle ADB = 34^\circ$ and $\angle BDC = 45^\circ$

G. $\angle ADB = 32^\circ$ and $\angle BDC = 42^\circ$

H. $\angle ADB = 40^\circ$ and $\angle BDC = 54^\circ$

J. $\angle ADB = 24^\circ$ and $\angle BDC = 30^\circ$



7. A teacher asked three different students to write the conditions that would result in a triangle. Which of the following students listed conditions that would result in more than one triangle?

STUDENT 1	STUDENT 2	STUDENT 3
△ABC AB is 5 cm $\angle A$ is 50° $\angle B$ is 70°	△ABC AB is 7 cm BC is 9 cm CA is 16 cm	△ABC $\angle A$ is 62° $\angle B$ is 36° $\angle C$ is 82°

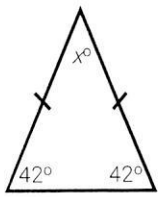
A. Student I and II

B. Student II only

C. Student III

D. Student I and III

8. Which of the following equations can be used to find the missing angle, x, in the triangle below?



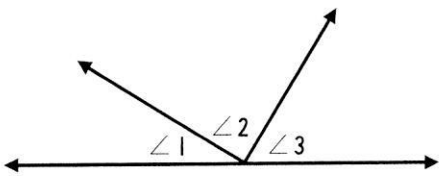
F. $x + 84 = 180$

G. $x + 84 = 360$

H. $x + 42 = 90$

J. $x + 42 = 180$

9. The measure of $\angle 2$ is 90°. Which of the following statements is not true about the diagram below?



A. angle 2 is a right angle

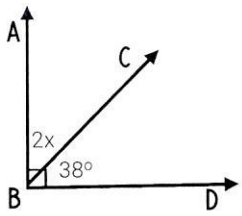
B. angles 1 and 3 are complementary

C. angles 1 and 3 are supplementary

D. angles 2 and 3 are adjacent

10. Angle ABC and angle CBD are complementary. What is the value of *x*?

Record your answer and fill in the bubbles on your answer document. Be sure to use the correct place value.



2D GEOMETRY
QUICK CHECK

Name _____

Date _____ Pd_____

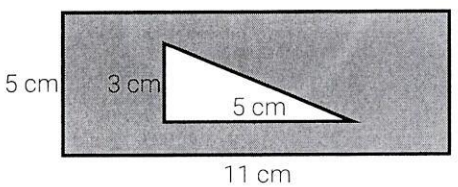
1. In PE a parachute is laid out on the gym floor. The parachute has a radius of 16 feet. Which measurement is closest to the circumference of the parachute in feet?

A. 100.48 ft^2 B. 198.4 ft^2 C. 49.6 ft^2 D. 803.84 ft^2

2. A coffee shop sign is in the shape of a circle. The sign measures 18 inches across in diameter. Which measurement is closest to the area of the sign in square inches?

F. 56.52 in^2 G. 101.36 in^2 H. 188.78 in^2 J. 254.34 in^2

3. A triangle is inscribed in a rectangle, as shown below. What is the area of the shaded region?



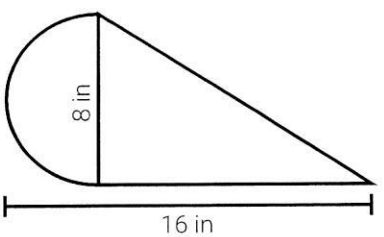
A. 40 cm^2

B. 62.5 cm^2

C. 47.5 cm^2

D. 22.75 cm^2

4. Using various puzzle pieces, Marco forms the figure below. What is the best estimate of the area of the figure?

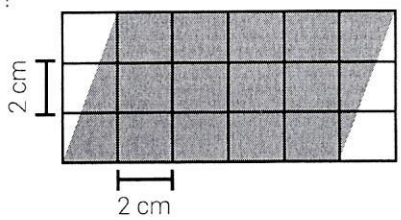


F. 146 in^2 G. 77 in^2 H. 57 in^2 J. 123 in^2

1. Ⓐ Ⓑ Ⓒ Ⓓ
2. Ⓕ Ⓖ Ⓗ Ⓙ
3. Ⓐ Ⓑ Ⓒ Ⓓ
4. Ⓕ Ⓖ Ⓗ Ⓙ
5. Ⓐ Ⓑ Ⓒ Ⓓ
6. Ⓕ Ⓖ Ⓗ Ⓙ
7. Ⓐ Ⓑ Ⓒ Ⓓ
8. Ⓕ Ⓖ Ⓗ Ⓙ
9. Ⓐ Ⓑ Ⓒ Ⓓ
10. Use the grid below.

					.		
⊕	⓪	⓪	⓪	⓪		⓪	⓪
⊖	①	①	①	①		①	①
	②	②	②	②		②	②
	③	③	③	③		③	③
	④	④	④	④		④	④
	⑤	⑤	⑤	⑤		⑤	⑤
	⑥	⑥	⑥	⑥		⑥	⑥
	⑦	⑦	⑦	⑦		⑦	⑦
	⑧	⑧	⑧	⑧		⑧	⑧
	⑨	⑨	⑨	⑨		⑨	⑨

5. A puzzle is shown below. Which of the following is the closest to the area of the shaded portions of the puzzle?



A. 18 cm^2

B. 72 cm^2

C. 24 cm^2

D. 60 cm^2

6. The area of a parallelogram measures 171 cm^2. The base of the parallelogram is 18 cm in length. Which of the following best represents the height of the parallelogram?

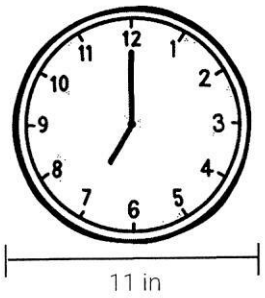
F. 11 cm

G. 9.5 cm

H. 13.5 cm

J. 8 cm

7. A round clock is shown below. Which of the following is closest to the number of inches around the clock?



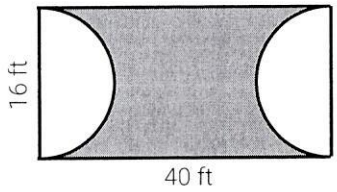
A. 20.8 in

B. 43.36 in

C. 16.2 in

D. 34.56 in

8. Janice is painting a portion of a gymnasium court. If Janice paints the shaded area, then how many square feet will she paint?



F. 527.58 ft^2

G. 861.7 ft^2

H. 439.04 ft^2

J. 378.6 ft^2

9. A circular rug has a radius of 4 feet. Which of the following is closest to the number of square inches the rug covers?

A. 55.26 ft^2

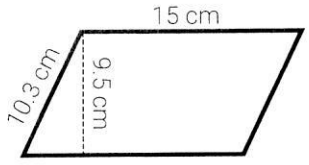
B. 50.24 ft^2

C. 29.7 ft^2

D. 33.6 ft^2

10. What is the area of the figure below?

Record the solution in the gridable answer section.



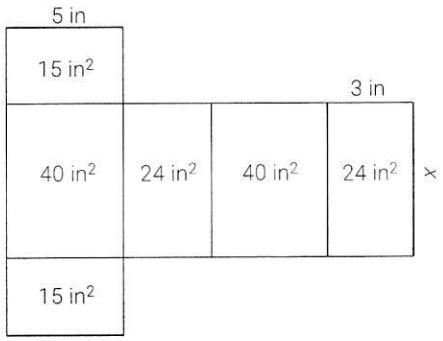
VOLUME AND SURFACE AREA
QUICK CHECK

Name _____

Date _____ Pd_____

1.	Ⓐ	Ⓑ	Ⓒ	Ⓓ
2.	Ⓕ	Ⓖ	Ⓗ	Ⓙ
3.	Ⓐ	Ⓑ	Ⓒ	Ⓓ
4.	Ⓕ	Ⓖ	Ⓗ	Ⓙ
5.	Ⓐ	Ⓑ	Ⓒ	Ⓓ
6.	Ⓕ	Ⓖ	Ⓗ	Ⓙ
7.	Ⓐ	Ⓑ	Ⓒ	Ⓓ
8.	Ⓕ	Ⓖ	Ⓗ	Ⓙ

1. The rectangular prism below has a total surface area of 158 in^2. Use the net below to determine the missing dimension, *x*.

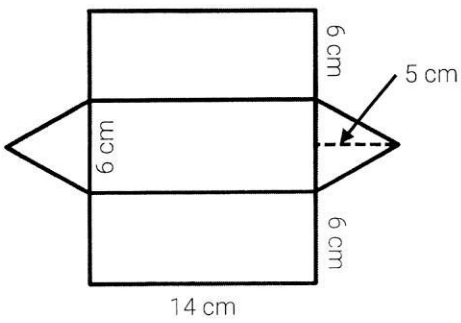


A. 6 in B. 8 in C. 12 in D. 10 in

2. A tissue box measures 6 inches wide and 6 inches long. If the volume of the tissue box is 252 inches, then what is the height of the tissue box?

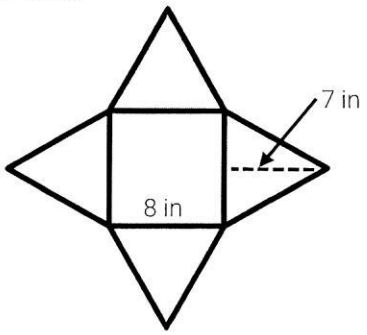
F. 11 in
G. 4 in
H. 7 in
J. 5 in

3. The net below depicts a triangular prism. What is the total surface area of the prism?



A. 282 cm^2
B. 210 cm^2
C. 312 cm^2
D. 624 cm^2

4. The net below shows a square pyramid. What is the lateral surface area?



F. 176 in^2

H. 64 in^2

G. 112 in^2

J. 210 in^2

5. The volume of the cube below is 250.047 m^3. The side length could be between which sets of numbers below?

A. 4 cm and 5 cm

C. 6 cm and 7cm

B. 5 cm and 6 cm

D. 7 cm and 8 cm

6. Which of the following is closest to the volume of the shoe box?

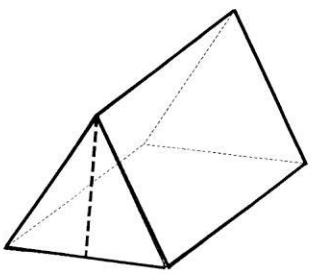
F. 1,490 cm^3

G. 2,134 cm^3

H. 1,782 cm^3

J. 1,962 cm^3

7. Which of the following shapes describes the 2D figure formed by slicing parallel to the base of a triangular prism?



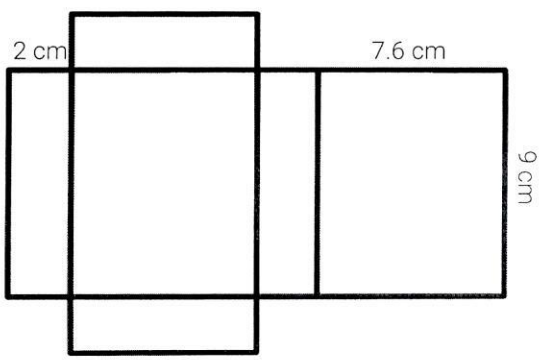
A. rectangle

B. parallelogram

C. trapezoid

D. triangle

8. The dimensions of the rectangular prism are shown on the net below. Which of the following is closest to the total surface area of the figure?



F. 101.6 cm^2

G. 203.2 cm^2

H. 285.1 cm^2

J. 178.7 cm^2

DATA AND STATISTICS
QUICK CHECK

Name _____

Date _____ Pd _____

1.	Ⓐ	Ⓑ	Ⓒ	Ⓓ
2.	Ⓕ	Ⓖ	Ⓗ	Ⓙ
3.	Ⓐ	Ⓑ	Ⓒ	Ⓓ
4.	Ⓕ	Ⓖ	Ⓗ	Ⓙ
5.	Ⓐ	Ⓑ	Ⓒ	Ⓓ
6.	Ⓕ	Ⓖ	Ⓗ	Ⓙ
7.	Ⓐ	Ⓑ	Ⓒ	Ⓓ
8.	Ⓕ	Ⓖ	Ⓗ	Ⓙ

1. Below is data collected from a random sample of 80 students regarding their fitness habits. If the entire school has 600 students, then what is a reasonable estimate for the number of students who consider themselves to have an average fitness habit?

FITNESS	POOR	AVERAGE	EXCELLENT
STUDENTS	16	44	20

A. 175 B. 120 C. 280 D. 330

2. The number of teachers from two different schools are shown below. The school district would like to survey staff members about the school dress code. Based on the data, which of the samples below would be considered random?

	6th GRADE TEACHERS	7th GRADE TEACHERS	8th GRADE TEACHERS
NORTH MS	16	14	19
WEST MS	11	10	12

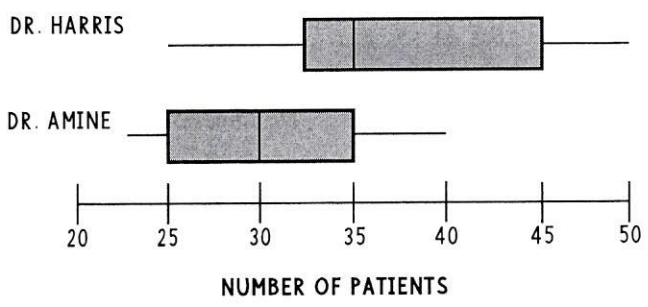
F. All of the teachers at North MS are sampled.

G. The seventh grade teachers at North MS and West MS are sampled.

H. The teachers are alphabetized by last name and every fifth teacher is sampled.

J. The teachers who attend the school board meeting are sampled.

3. The number of patients at a doctors office is tracked over a period of 10 days. Which statement best supports the data?



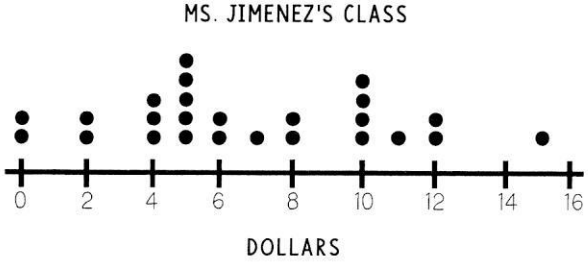
A. The data for Dr. Amine's office is more symmetrical than the data for Dr. Harris's office.

B. The interquartile range of the two offices is the same.

C. The median number of patients at Dr. Harris's office is less than the median number of patients at Dr. Amine's office.

D. The range of the data for Dr. Harris's office is less than the range of the data for Dr. Amine's office.

4. The dot plot below represents the number of dollars in allowance that students receive each week in Mrs. Jimenez's class. What is the median amount of allowance?



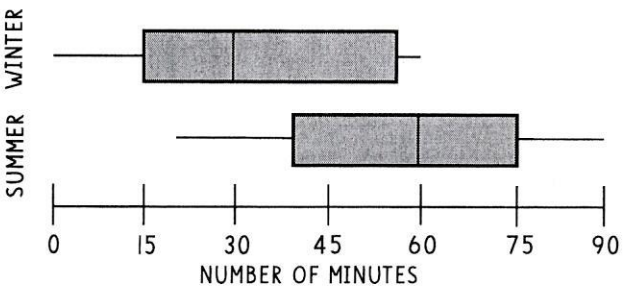
F. 5

G. 6

H. 7

J. 8

5. Twenty students in Mr. Martin's class each took a survey about the number of minutes they played outside. The box plots represent the amount of time the students spent outside playing in the summer and in the winter. Which statement is best supported by the data?



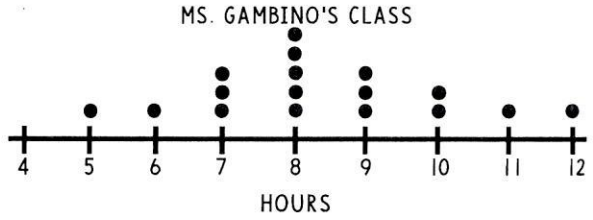
A. The range of number of minutes outside is the same in the summer and in the winter.

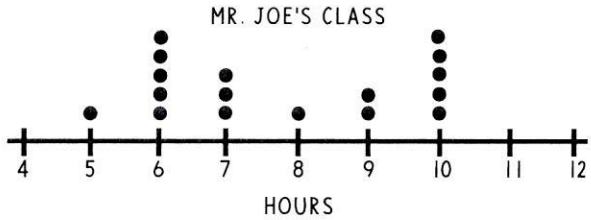
B. The median number of minutes outside in the summer is equal to the maximum number of minutes outside in the winter.

C. The interquartile range for the number of minutes outside is the same in the summer and in the winter.

D. The minimum number of minutes outside in the summer is the same as the first quartile in the winter.

6. The average number of hours of sleep of Ms. Gambino's and Mr. Joe's classes is shown below. Which of the following statements is best supported by the data?





F. The median number of hours slept in Ms. Gambino's class is less than the median number of hours in Mr. Joe's class.

G. The data for Ms. Gambino's class is symmetrical, while the data for Mr. Joe's class is skewed right.

H. The range of data in Mr. Joe's class is less than the range of data is Ms. Gambino's class.

J. The mode of the data in Ms. Gambino's class was equal to the mode of the data in Mr. Joe's class.

7. Which of the following groups is NOT considered a sample of the US population?

A. Women who live in the US

B. People who are registered to vote in the US

C. Europeans who vacation in the US

D. Students who attend public schools in the US

8. A local bank polls every twentieth customer to determine if they are satisfied with the helpfulness of the bank. Forty customers are surveyed and 26 are satisfied. What conclusion can be drawn for the 800 daily customers?

F. 65% of the customers are unsatisfied with the helpfulness of the bank

G. 26% of the customers are unsatisfied with the helpfulness of the bank

H. 40% of the customers are satisfied with the helpfulness of the bank

J. Of the 800 customers, 520 would be satisfied with the helpfulness of the bank

PROBABILITY
QUICK CHECK

Name _____

Date _____ Pd_____

1.	Ⓐ	Ⓑ	Ⓒ	Ⓓ
2.	Ⓕ	Ⓖ	Ⓗ	Ⓙ
3.	Ⓐ	Ⓑ	Ⓒ	Ⓓ
4.	Ⓕ	Ⓖ	Ⓗ	Ⓙ
5.	Ⓐ	Ⓑ	Ⓒ	Ⓓ
6.	Ⓕ	Ⓖ	Ⓗ	Ⓙ
7.	Ⓐ	Ⓑ	Ⓒ	Ⓓ
8.	Ⓕ	Ⓖ	Ⓗ	Ⓙ
9.	Ⓐ	Ⓑ	Ⓒ	Ⓓ
10.	Ⓕ	Ⓖ	Ⓗ	Ⓙ

1. In a survey 7 out of 8 dentists recommend a ProTooth toothbrush. Based on this information, which can the toothbrush company predict about its recommendations?

A. In a survey of 24 dentists, 18 of them will recommend a ProTooth toothbrush.
B. In a survey of 40 dentists, 33 of them will recommend a ProTooth toothbrush.
C. In a survey of 64 dentists, 56 of them will recommend a ProTooth toothbrush.
D. In a survey of 88 dentists, 70 of them will recommend a ProTooth toothbrush.

2. At a pizza shop you can choose thick or thin crust, red or white sauce, and toppings of pepperoni, cheese, or vegetarian. How many different combinations are possible for someone who does not care for meat or white sauce?

F. 3
G. 24
H. 9
J. 4

3. A basket of beads contains 8 red beads, 6 yellow beads, and 6 green beads. A bead will be drawn from the basket and replaced 150 times. What is a reasonable prediction for the number of times a green bead is drawn?

A. 45
B. 60
C. 36
D. 72

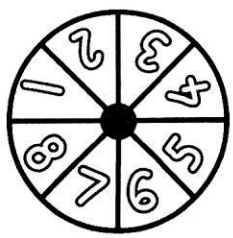
4. A student takes notes in class, completes the assignments, attends tutoring, and prepares for the test. Which best represents the likelihood of the student being successful on the exam?

F. certain G. likely H. unlikely J. impossible

5. The spinner below is spun two times in a row. What is the probability of spinning two prime numbers?

A. $\frac{9}{64}$ C. $\frac{25}{64}$

B. $\frac{1}{4}$ D. $\frac{1}{2}$



6. Audrey has the following t-shirts in her dresser drawer. She will randomly choose one t-shirt. Then she will replace it and choose a second t-shirt. What is the probability that she chooses a polka dot shirt and then a striped shirt?

- 5 striped t-shirts
- 6 solid t-shirts
- 2 floral t-shirts
- 2 polka dot t-shirts

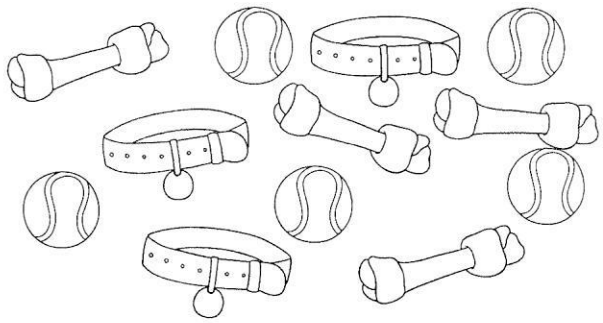
F. $\frac{3}{5}$

G. $\frac{6}{45}$

H. $\frac{2}{15}$

J. $\frac{2}{45}$

7. Neil goes to the pet shop and selects a treat for his dog. He chooses one, then chooses another. What is the probability Neil selects a bone and then a ball?



A. $\frac{5}{33}$

B. $\frac{1}{3}$

C. $\frac{5}{12}$

D. $\frac{7}{33}$

8. Students standing in line for a theme park were surveyed about their favorite ride. Their responses are shown below. If one student is picked randomly, then which of the following is true?

RIDE	NUMBER OF STUDENTS
ROLLER COASTERS	28
CARINVAL GAMES	14
LIVE SHOWS	8

F. The student's favorite ride is half as likely to be a live show than a roller coaster.

G. The student's favorite ride is more likely to be a carnival game than a roller coaster.

H. The student's favorite ride is twice as likely to be a roller coaster than the carnival games.

J. The student's favorite ride is twice as likely to be the carnival game than the live show.

9. A neighborhood watch association surveyed 40 neighbors about their feelings of safety in the neighborhood. They will survey an additional 80 neighbors. Based on the information, predict how many of the 80 neighbors will feel safe?

RESPONSE	NUMBER OF NEIGHBORS
UNSAFE	12
NEUTRAL	10
SAFE	18

A. 39

B. 24

C. 36

D. 40

10. The following playing cards are used in a game. What is the probability of **not** selecting a prime number?

F. $\frac{3}{7}$

G. $\frac{1}{3}$

H. $\frac{1}{6}$

J. $\frac{4}{7}$