

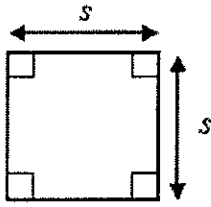
* Grade 7 Math Notes & Review *

DOE has not released final version of Spring 2019 formula sheet.

* Problems begin after the Notes & Review.

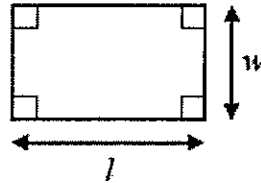
Grade 7 Mathematics Formula Sheet Geometric Formulas

There are a certain # of problems for each day & it is labeled on the left top corner!



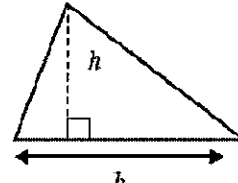
$$p = 4s$$

$$A = s^2$$

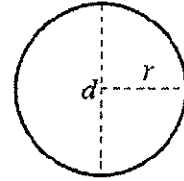


$$p = 2l + 2w$$

$$A = lw$$



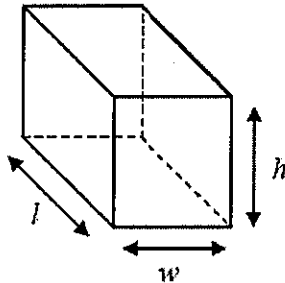
$$A = \frac{1}{2}bh$$



$$C = 2\pi r$$

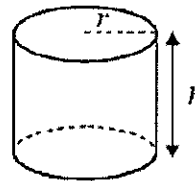
$$C = \pi d$$

$$A = \pi r^2$$



$$V = lwh$$

$$S.A. = 2lw + 2lh + 2wh$$



$$V = \pi r^2 h$$

$$S.A. = 2\pi r^2 + 2\pi rh$$

PI

$$\pi \approx 3.14$$

$$\pi \approx \frac{22}{7}$$

Abbreviations

milligram	mg
gram	g
kilogram	kg
milliliter	ml
liter	l
kiloliter	kl
millimeter	mm
centimeter	cm
meter	m
kilometer	km
square centimeter	cm ²
cubic centimeter	cm ³

ounce	oz
pound	lb
quart	qt
gallon	gal.
inch	in.
foot	ft
yard	yd
mile	mi
square inch	in ²
square mile	mi ²
cubic inch	in ³
cubic foot	ft ³

Area	A
Circumference	C
Perimeter	p
Surface Area	S.A.
Volume	V

Mathematics

Content Review Notes

Grade 7 Mathematics: First Nine Weeks
2018-2019

This resource is intended to be a guide for parents and students to improve content knowledge and understanding. The information below is detailed information about the Standards of Learning taught during the 1st grading period and comes from the *Mathematics Standards of Learning Curriculum Framework, Grade 7* issued by the Virginia Department of Education. The Curriculum Framework in its entirety can be found at the following website:

http://www.doe.virginia.gov/testing/sol/standards_docs/mathematics/2016/cf/grade7math-cf.pdf

SOL Practice Items provided by the VDOE,
http://www.doe.virginia.gov/testing/sol/standards_docs/mathematics/index.shtml
Answers are located on the last page of the booklet.

SOL 7.1

The student will

- a) investigate and describe the concept of negative exponents for powers of ten;
 - b) compare and order numbers greater than zero written in scientific notation; (*non-calculator);
 - c) compare and order rational numbers (*non-calculator);
 - d) determine square roots of perfect squares (*non-calculator); and
 - e) identify and describe absolute value for rational numbers.
- Negative exponents for powers of 10 are used to represent numbers between 0 and 1.
(e.g., $10^{-3} = \frac{1}{10^3} = 0.001$)
 - Negative exponents for powers of 10 can be investigated through patterns such as:
$$\begin{aligned} 10^2 &= 100 \\ 10^1 &= 10 \\ 10^0 &= 1 \\ 10^{-1} &= \frac{1}{10^1} = \frac{1}{10} = 0.1 \end{aligned}$$
 - A number followed by a percent symbol (%) is equivalent to that number with a denominator of 100.
(e.g., $\frac{3}{5} = \frac{60}{100} = 0.60 = 60\%$)

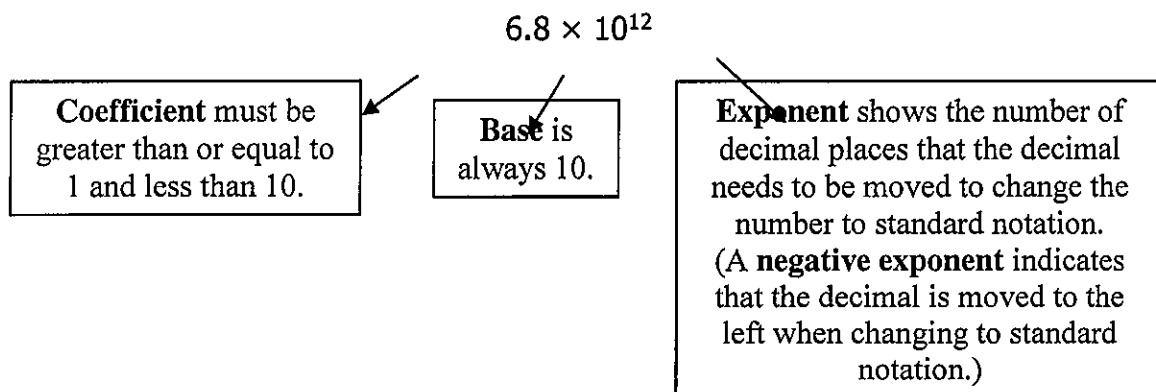
- **Scientific notation** is used to represent very large or very small numbers.
- A number written in scientific notation is the product of two factors — a decimal greater than or equal to 1 but less than 10, and a power of 10 (e.g., $3.1 \times 10^5 = 310,000$ and $2.85 \times 10^{-4} = 0.000285$).

Numbers can be written in standard form and in scientific notation.

Standard Form: 6,800,000,000,000

Scientific Notation: 6.8×10^{12}

Numbers written in scientific notation are made up of three parts: the coefficient, the base, and the exponent.



- Equivalent relationships among **fractions**, **decimals**, and **percents** can be determined by using manipulatives. (e.g., fraction bars, Base-10 blocks, fraction circles, graph paper, number lines and calculators)
- A **square root** of a number is a number which, when multiplied by itself, produces the given number. (e.g., $\sqrt{121}$ is 11 since $11 \times 11 = 121$)
- The square root of a number can be represented geometrically as the length of a side of the square.
- The **absolute value** of a number is the distance from 0 on the number line regardless of direction. The absolute value of a number will *always* be positive. (e.g., $\left| \frac{-1}{2} \right| = \frac{1}{2}$)

Examples:

1. Which would best describe the value of 10^{-2} ?

- A. Its value is greater than 100
- B. Its value is less than 10
- C. Its value is exactly 100
- D. Its value is exactly 10

$$10^{-2} = 0.01$$

Answer: B. Its value is less than 10

2. Which would be equivalent to 3,960, 000 in scientific notation?

- A. 3.96×10^6
- B. 3.96×10^5
- C. 3.96×10^3
- D. 3.96×10^2

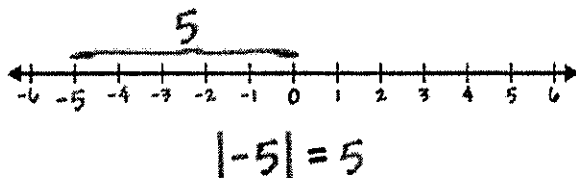


Answer: A – The decimal place would move 6 places to the left

3. Which has the same value as $|-5|$?





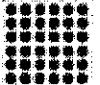
- A. -5
- B. 5
- C. $\frac{1}{5}$
- D. $\frac{-1}{5}$

The absolute value of a number is the distance from 0 on the number line.



Answer: B. 5

4. What is the same value as $\sqrt{36}$?

Symbols: $\sqrt{\quad}$ or $\sqrt[n]{\quad}$		
$\sqrt{4} = 2$		2^2 or $2 \times 2 = 4$
$\sqrt{9} = 3$		3^2 or $3 \times 3 = 9$
$\sqrt{16} = 4$		4^2 or $4 \times 4 = 16$
$\sqrt{25} = 5$		5^2 or $5 \times 5 = 25$
$\sqrt{36} = 6$		6^2 or $6 \times 6 = 36$

Answer: 6

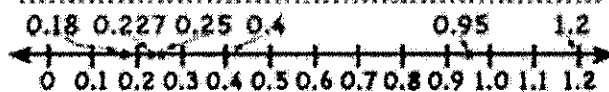
5. Arrange the numbers from *least to greatest*.

18% , $.95$, $\frac{1}{4}$, 22.7% , $\frac{6}{5}$, 0.4

ORDER FROM LEAST TO GREATEST

18% 0.95 $\frac{1}{4}$ 22.7% $\frac{6}{5}$ 0.4

$18\% \rightarrow 0.18$ $\frac{1}{4} = 0.25$ $\frac{6}{5} = 1.2$
 $22.7\% \rightarrow 0.227$



Answer: 18% , 22.7% , $\frac{1}{4}$, 0.4 , $.95$, $\frac{6}{5}$

SOL 7.2 The student will solve practical problems involving operations with rational numbers.

- The set of rational numbers includes the set of all numbers that can be expressed as fractions in the form $\frac{a}{b}$ where a and b are integers and b does not equal zero. The decimal form of a rational number can be expressed as a terminating or repeating decimal. A few examples of rational numbers are: $\sqrt{25}$, $\frac{1}{4}$, -2.3 , 82 , 75% , $4.\overline{59}$.
- Proper fractions, improper fractions, and mixed numbers are terms often used to describe fractions. A proper fraction is a fraction whose numerator is less than the denominator. An improper fraction is a fraction whose numerator is equal to or greater than the denominator. An improper fraction may be expressed as a mixed number. A mixed number is written with two parts: a whole number and a proper fraction (e.g., $3\frac{5}{8}$). A fraction can have a positive or negative value.

The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations to

- Solve practical problems involving addition, subtraction, multiplication, and division with rational numbers expressed as integers, fractions (proper or improper), mixed numbers, decimals, and percents. Fractions may be positive or negative. Decimals may be positive or negative and are limited to the thousandths place.

Example 1:

Mark owes his sister \$10. He earned \$15 for washing the car. He gave $\frac{1}{5}$ of his earnings to a local charity and then paid his sister. Does Mark have enough to repay his sister the full amount? Why or why not?

Step 1 Find $\frac{1}{5}$ of his earnings for charity $\frac{1}{5} \cdot 15 = \$3$

Step 2 Subtract what he is giving charity from his earnings. $\$15 - \$3 = \$12$

Step 3 Mark owes his sister \$10. $\$12 - \$10 = \$2$

Mark can pay his sister and have \$2 left over

Example 2

The seventh-graders at the middle school are going on a field trip to the science museum. They will spend $3\frac{1}{2}$ hours at the museum. The students will need to visit six exhibits while they are there. If the time is evenly distributed, how many minutes will the students spend at each exhibit?

Step 1 Calculate the number of minutes spent at the museum

There are 60 minutes in an hour $3\frac{1}{2} \cdot 60 = 210$ minutes

Step 2 Divide the number of minutes spent at the museum by the number of exhibits that students need to visit.

$$\frac{210}{6} = 35$$

The students can spend 35 minutes at each exhibit

Content Review:

Standards of Learning in Detail

Grade 7 Mathematics: Second Nine Weeks
2018-2019

This resource is intended to be a guide for parents and students to improve content knowledge and understanding. The information below is detailed information about the Standards of Learning taught during the 2nd grading period and comes from the *Mathematics Standards of Learning Curriculum Framework, Grade 7* issued by the Virginia Department of Education.

SOL 7.11

The student will evaluate algebraic expressions for given replacement values of the variables.

- Represent algebraic expressions using concrete materials and pictorial representations. Concrete materials may include colored chips or algebra tiles.
- Use the order of operations and apply the properties of real numbers to evaluate expressions for given replacement values of the variables. Exponents are limited to 1, 2, 3, or 4 and bases are limited to positive integers. Expressions should not include braces { } but may include brackets [] and absolute value | |. Square roots are limited to perfect squares. Limit the number of replacements to no more than three per expression.

To evaluate an algebraic expression, substitute a given replacement value for a variable and apply the order of operations. For example, if $a = 3$ and $b = -2$ then $5a + b$ can be evaluated as:
 $5(3) + (-2) = 15 + (-2) = 13$

The replacement values are the numbers that replace the variables in an algebraic expression.

Example: If $x = (-5)$, what is the value of this expression?

$$x + 4 \cdot 10$$

Step 1: $(x) + 4 \cdot 10$

Step 2: $(-5) + (4 \cdot 10)$

Step 3: $-5 + 40$

Step 4: The answer is 35.

SOL 7.12

The student will solve two-step linear equations in one variable, including practical problems that require the solution of a two-step linear equation in one variable.

- Represent and solve two-step linear equations in one variable using a variety of concrete materials and pictorial representations.
- Apply properties of real numbers and properties of equality to solve two-step linear equations in one variable. Coefficients and numeric terms will be rational.
- Confirm algebraic solutions to linear equations in one variable.
- Write verbal expressions and sentences as algebraic expressions and equations.
- Write algebraic expressions and equations as verbal expressions and sentences.
- Solve practical problems that require the solution of a two-step linear equation.

Examples of Algebraic Expressions and Equivalent Verbal Expressions:

Algebraic Expression	Verbal Expression
$x + (x + 1)$	<i>The sum of two consecutive integers</i>
$2x - 4$	<i>Four less than twice a number</i>
$3x + 8$	<i>Three times a number increased by eight</i>

An algebraic equation is a mathematical statement that says that two expressions are equal. (e.g., $2x + 1 = 5$)

Examples of Algebraic Equations and Equivalent Verbal Sentences:

Algebraic Equation	Verbal Sentence
$30 - 40 = x$	<i>Forty less than thirty is a number.</i>
$x + 5 = 8$	<i>The sum of a number and five is eight.</i>
$3 + 2x = 15$	<i>Three more than twice a number is fifteen.</i>

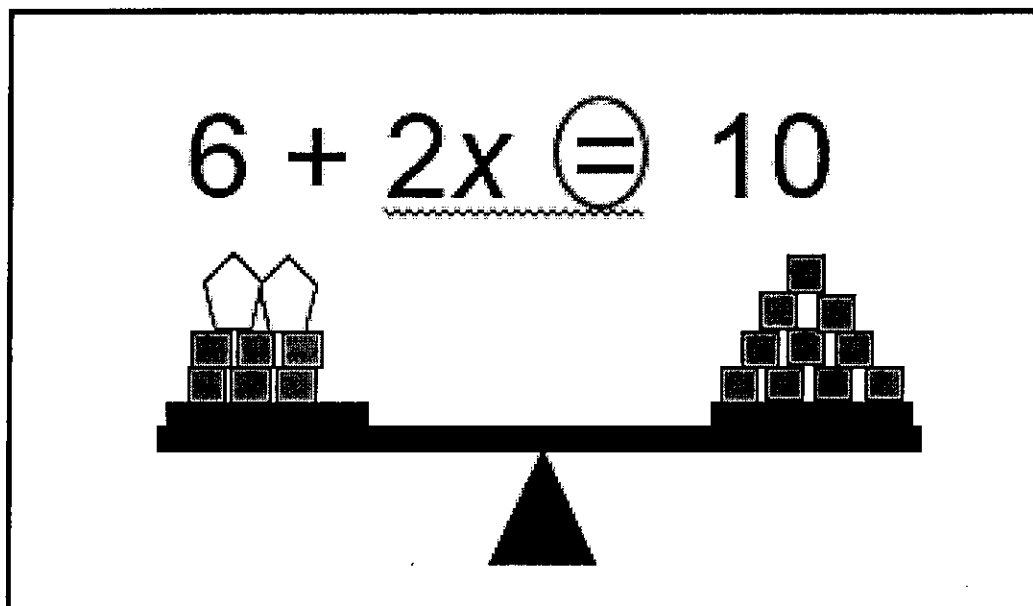
Solve two step linear equations:

Examples: $2x + 1 = -5$;
 $2x + 1 - 1 = -5 - 1$
 $2x = -6$
 $\frac{2x}{2} = \frac{-6}{2}$
 $x = -3$

$$\begin{aligned}\frac{x-7}{3} &= 4 \\ \frac{x-7}{3} \cdot 3 &= 4 \cdot 3 \\ x-7 &= 12 \\ x-7+7 &= 12+7 \\ x &= 19\end{aligned}$$

Equation

a mathematical sentence stating that two expressions are equal



$$2.76 + 3 = n + 2.76$$

$$3x + (-5.1) = 3\frac{3}{4}$$

SOL 7.13

The student will solve one- and two-step linear inequalities in one variable, including practical problems, involving addition, subtraction, multiplication, and division, and graph the solution on a number line.

- Apply properties of real numbers and the multiplication and division properties of inequality to solve one-step inequalities in one variable, and the addition, subtraction, multiplication, and division properties of inequality to solve two-step inequalities in one variable. Coefficients and numeric terms will be rational.
- Represent solutions to inequalities algebraically and graphically using a number line.
- Write verbal expressions and sentences as algebraic expressions and inequalities.
- Write algebraic expressions and inequalities as verbal expressions and sentences.
- Solve practical problems that require the solution of a one- or two-step inequality.
- Identify a numerical value(s) that is part of the solution set of a given inequality.

A one-step inequality is defined as an inequality that requires the use of one operation to solve.

Examples: $x - 4 > 9$ $2n \leq -14$

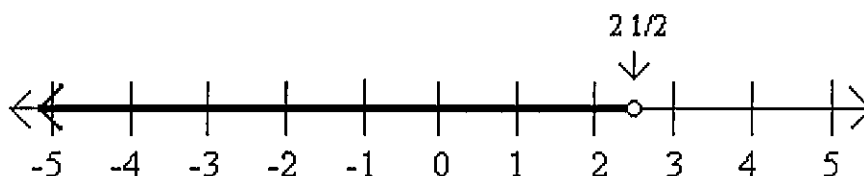
The inverse operation for addition is subtraction, and the inverse operation for multiplication is division.

When both expressions of an inequality are **multiplied or divided by a negative number**, the inequality symbol reverses.

Example: $-3x < 15$ is equivalent to $x > -5$.

Solutions to inequalities can be represented using a number line.

Example 1: $x < 2\frac{1}{2}$



Example 2:

$$\begin{array}{l} s - 2 \leq 2 \\ s - 2 + 2 \leq 2 + 2 \\ s \leq 4 \end{array}$$



Note: When the solution to an inequality is $>$ or $<$, it is represented on a graph using an open circle (Example 1 above).
When the solution to an inequality is \geq or \leq , it is represented on a graph using a closed circle (Example 2 above).

SOL 7.3

The student will solve single-step and multistep practical problems, using proportional reasoning.

- A proportion is a statement of equality between two ratios.
- A proportion can be written as $\frac{a}{b} = \frac{c}{d}$, $a:b = c:d$, or a is to b as c is to d .

Example: Using the illustration above, the following shows ways of writing equivalent proportions:

$$\frac{12}{4} = \frac{9}{3} \quad \text{or} \quad 12:4 = 9:3 \quad \text{or} \quad 12 \text{ is to } 4 \text{ as } 9 \text{ is to } 3$$

$$\frac{12}{9} = \frac{4}{3} \quad \text{or} \quad 12:9 = 4:3 \quad \text{or} \quad 12 \text{ is to } 9 \text{ as } 4 \text{ is to } 3$$

$$\frac{3}{4} = \frac{9}{12} \quad \text{or} \quad 3:4 = 9:12 \quad \text{or} \quad 3 \text{ is to } 4 \text{ as } 9 \text{ is to } 12$$

- A proportion can be solved by finding the product of the means and the product of the extremes. For example, in the proportion $a:b = c:d$, a and d are the extremes and b and c are the means. If values are substituted for a , b , c , and d such as $5:12 = 10:24$, then the product of extremes (5×24) is equal to the product of the means (12×10).

Example: Joseph and Samantha bought potatoes at the farmer's market. Joseph paid \$4.32 for 6 pounds of potatoes. At that rate, how much would Samantha pay for 4 pounds of potatoes?

To calculate the amount of money Samantha paid for her potatoes, set up a proportion.

$$\begin{array}{ccc} \$ & \frac{\$4.32}{6} & = \frac{x}{4} \\ \text{Pounds} & & \end{array}$$

Next, solve the proportion by multiplying diagonally.

$$4.32 \cdot 4 = 6 \cdot x$$

Now solve the equation.

$$17.28 = 6x$$

Divide each side of the equation by 6.

$$\begin{array}{ccc} \frac{17.28}{6} & = & \frac{6x}{6} \\ 2.88 & = & x \end{array}$$

Answer: Samantha paid \$2.88 for 4 pounds of potatoes.

- In a proportional situation, both quantities increase or decrease together.
- In a proportional situation, two quantities increase multiplicatively. Both are multiplied by the same factor.
- A proportion can be solved by finding equivalent fractions.
- A rate is a ratio that compares two quantities measured in different units. A unit rate is a rate with a denominator of 1. Examples of rates include miles/hour and revolutions/minute.
- Proportions are used in everyday contexts, such as speed, recipe conversions, scale drawings, map reading, reducing and enlarging, comparison shopping, and monetary conversions.
- Proportions can be used to convert between measurement systems. For example: if 2 inches is about 5 cm, how many inches are in 16 cm?

$$\frac{2\text{inches}}{x} = \frac{5\text{cm}}{16\text{cm}}$$

- A percent is a special ratio in which the denominator is 100.
- Proportions can be used to represent percent problems as follows:

$$\frac{\text{percent}}{100} = \frac{\text{part}}{\text{whole}}$$

- When finding tax, tip, and discount students should be able to compute 10% as a benchmark reference.
- Once students understand how to find 10% of a number (which means to move the decimal place one position to the left), they should be able to mentally compute 5%, 10%, 15%, and 20% in practical situations such as tax, tip, and discount.

Example: 10% of 25.00 → The decimal place moves one position to the left, so 10% of \$25.00 is \$2.50.

- Calculating Sales Tax:

Sales Tax is an amount charged in addition to the original purchase price. Sales tax can be found by taking the original amount and multiplying by the percentage of sales tax. The percentage of sales tax should be turned from a percent into a decimal.

Example: Jennifer purchases a new pair of earrings for \$15.00. The sales tax on the earrings is 6%. Calculate the sales tax of the purchase.

$$\frac{\%}{100} = \frac{x}{\$ \text{ total}} \quad \frac{6}{100} = \frac{x}{15} \quad 100x = 90 \quad \text{or} \quad \$15.00 \times .06 = \$0.90 \text{ or } 90\text{¢ sales tax}$$

- Calculating Tip:

Tip is an amount you pay for a service in addition to the original price. Tip can be found by taking the original amount and multiplying by the percentage of the tip. The percentage of tip should be turned from a percent into a decimal.

Example: John and his family ordered a pizza and four drinks at a restaurant and their original bill was \$24.50. They would like to leave the waitress a 20% tip. How much money should John's family leave as a tip?

$$\frac{\%}{100} = \frac{X}{\$ \text{ total}} \quad \frac{20}{100} = \frac{X}{24.5} \quad 100x = 490 \quad \text{or} \quad \$24.50 \times .20 = \$4.90 \text{ tip}$$

- Calculating Discount:

Discount is the amount of money you subtract from the original price of an item. Discount can be found by taking the original amount and multiplying by the percentage of the discount. The percentage of discount should be turned from a percent into a decimal.

Example: Sara decided to buy a pair of shoes that cost \$64.00 and were discounted for 25% off. How much did Sara save with the discount?

$$\frac{\%}{100} = \frac{X}{\$ \text{ total}} \quad \frac{25}{100} = \frac{X}{64} \quad 100x = 1600 \quad \text{or} \quad \$64.00 \times .25 = \$16.00 \text{ discount}$$

Option 2 for consumer math problems

Read the problem. (Estimate 10% of the tax, tip, or discount to have an idea of expected amount.) Find the tax, tip or discount by placing the amount into the formula: $\frac{\%}{100} = \frac{\text{tax, or tip or discount}}{\text{dollar amount}}$. Place the percent amount, that can be found in the word problem, over 100. Find the dollar amount from the problem and place as the denominator. The missing amount will be either the tax, tip or discount; it's the variable. Cross multiply and divide by 100.

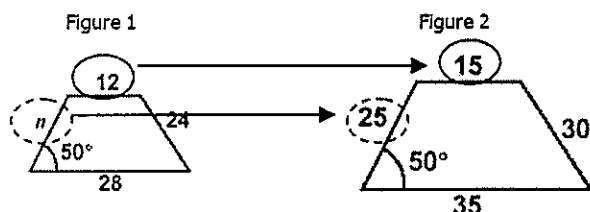
Consumer Math Problems...	Key Info.	Proportion $\frac{\%}{100} = \frac{x}{\$}$	Tip, Tax, or Discount	Total or Discount Price (Cost to Purchase)
<p>A. Jane's bill at the restaurant was \$52.00. She planned to leave a 15% tip. How much was the tip? What was the total cost of the meal with tip?</p> <p>10% = _____</p>	<p>$x =$ tip</p> <p>$\% = 15$</p> <p>$\\$ = 52$</p>	<p>$\frac{15}{100} = \frac{x}{52}$</p> <p>$100x = 15 \cdot 52$</p> <p>$100x = 780$</p> <p>$x = 7.8$</p>	<p>Tip=\$7.80</p>	<p>\$59.80</p>
<p>B. Gavin bought a new leather jacket for \$240.50. He paid 7% sales tax. What was the tax? How much money did he need to purchase the jacket? (Total Cost)</p> <p>10% = _____</p>	<p>$x =$ tax</p> <p>$\% = 7$</p> <p>$\\$ = 240.50$</p>			
<p>C. The original price of the skateboard was \$175.00. It was on sale for 45% off. What was the discount? How much money is needed to buy the board? (Discount Price)</p> <p>10% = _____</p>	<p>$x =$ discount</p> <p>$\% = 45$</p> <p>$\\$ = 175$</p>			

SOL 7.5

The student will solve problems, including practical problems, involving the relationship between corresponding sides and corresponding angles of similar quadrilaterals and triangles.

- Two polygons are similar if corresponding (matching) angles are congruent and the lengths of corresponding sides are proportional.
- Congruent polygons have the same size and shape.
- Congruent polygons are similar polygons where the ratio of the corresponding sides is 1:1.

Example: These figures are similar. Calculate the length of side n .



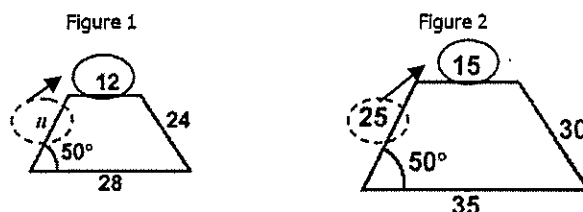
To calculate the length of side n , set up a proportion.

$$\frac{n}{25} = \frac{12}{15}$$

Next, solve the proportion by multiplying diagonally.

Now solve the equation.

Divide each side of the equation by 15.



To calculate the length of side n , set up a proportion.

$$\frac{n}{12} = \frac{25}{15}$$

$$12 \cdot 25 = 15 \cdot n$$

$$300 = 15n$$

$$\frac{300}{15} = \frac{15n}{15}$$

$$20 = n$$

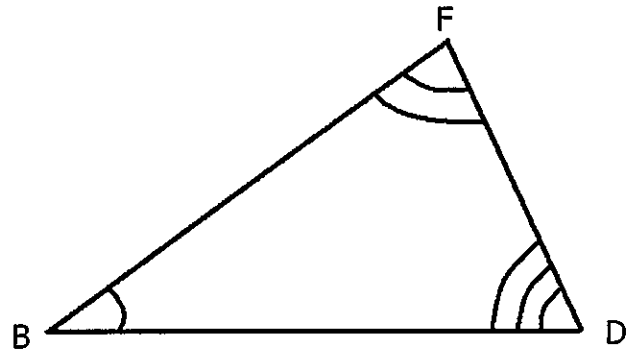
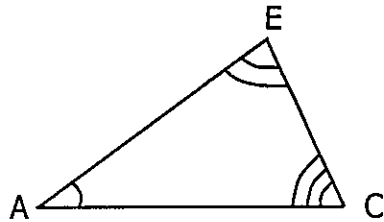
The length of side n is equal to 20.

- Similarity statements can be used to determine corresponding parts of similar figures such as:

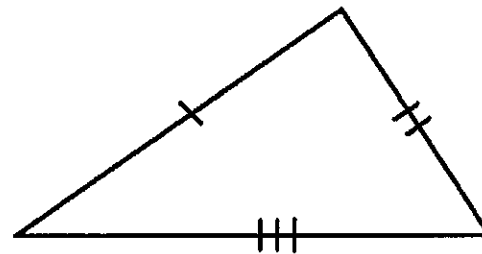
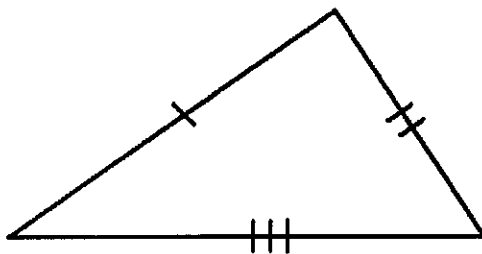
$$\begin{aligned}\triangle ABC &\sim \triangle DEF \\ \angle A &\text{ corresponds to } \angle D \\ \overline{AB} &\text{ corresponds to } \overline{DE}\end{aligned}$$

$$\frac{AB}{DE} \text{ is proportional to } \frac{BC}{EF}$$

- The traditional notation for marking congruent angles is to use a curve on each angle. Denote which angles are congruent with the same number of curved lines. For example, if $\angle A$ congruent to $\angle B$, then both angles will be marked with the same number of curved lines.



- Congruent sides are denoted with the same number of hatch marks on each congruent side. For example, a side on a polygon with 2 hatch marks is congruent to the side with 2 hatch marks on a congruent polygon.

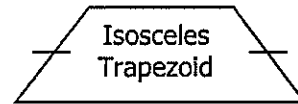
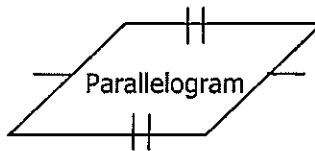
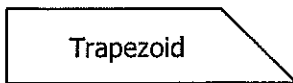
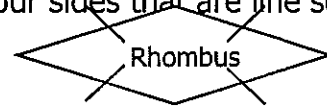
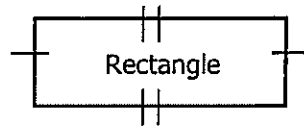
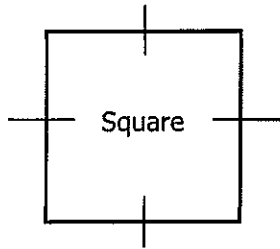


SOL 7.6

The student will

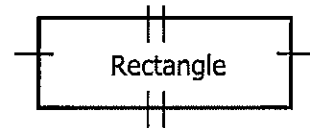
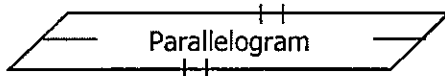
- a) compare and contrast quadrilaterals based on their properties; and
- b) determine unknown side lengths or angle measures of quadrilaterals.

- A **quadrilateral** is a closed plane (two-dimensional) figure with four sides that are line segments.



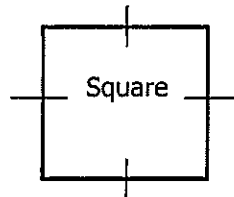
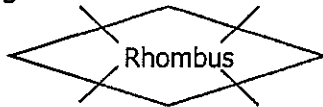
- A **parallelogram** is a quadrilateral whose opposite sides are parallel and opposite angles are congruent.

Examples:



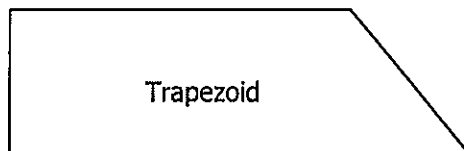
- A **rectangle** is a parallelogram with four right angles. The diagonals of a rectangle are the same length and bisect each other.
- A **square** is a rectangle with four congruent sides whose diagonals are perpendicular. A square is a rhombus with four right angles.
- A **rhombus** is a parallelogram with four congruent sides whose diagonals bisect each other and intersect at right angles.

Examples:



- A **trapezoid** is a quadrilateral with exactly one pair of parallel sides.

Example:



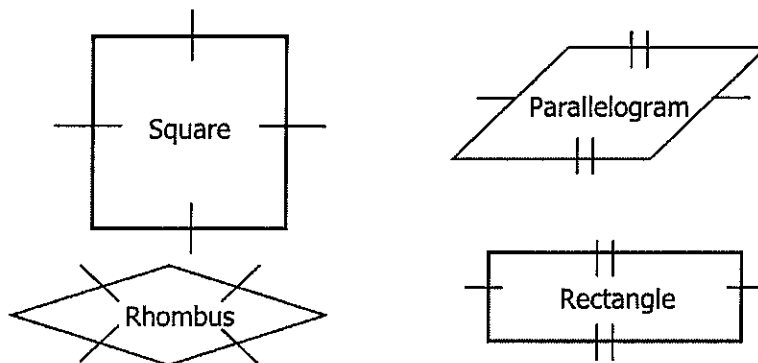
- A trapezoid with congruent, nonparallel sides is called an **isosceles trapezoid**.

Example:



- Quadrilaterals can be sorted according to common attributes, using a variety of materials.

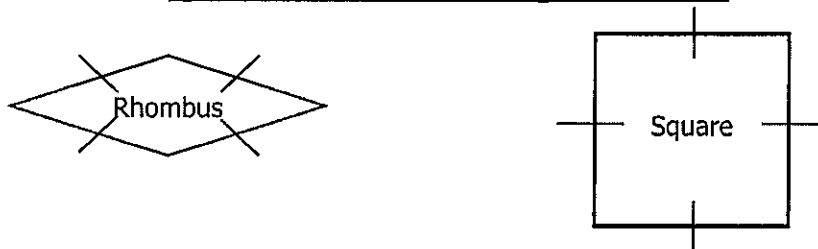
Quadrilaterals with **2 Pairs** of Parallel Sides



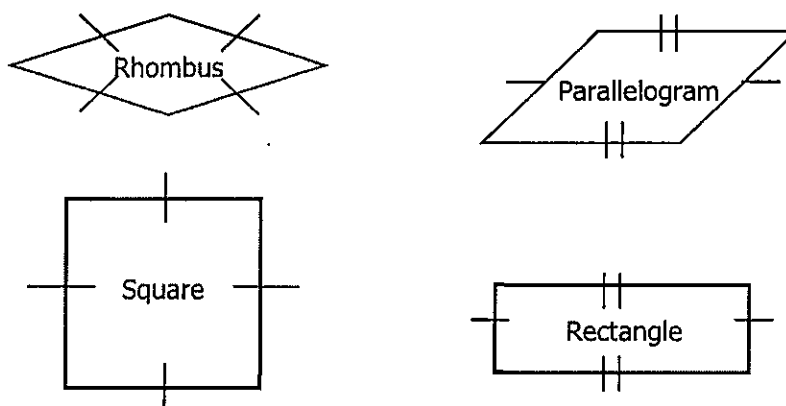
Quadrilaterals with **Exactly 1 Pair** of Parallel Sides



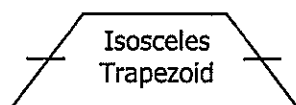
Quadrilaterals with **4 Congruent** Sides



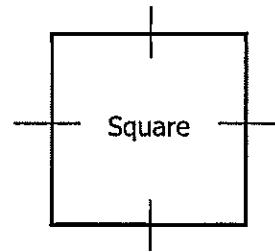
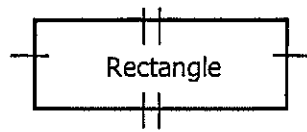
Quadrilaterals with **2 Pairs** of Congruent Sides



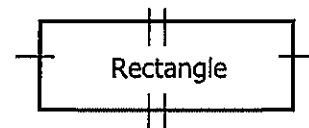
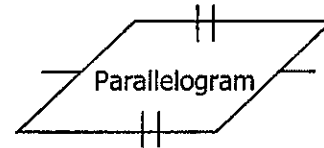
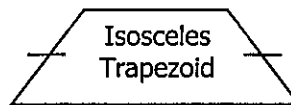
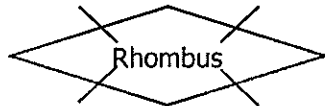
Quadrilaterals with **1 Pair** of Congruent Sides



Quadrilaterals with **4 Congruent**, Right Angles



Quadrilaterals with **2 Pairs** of Congruent Angles

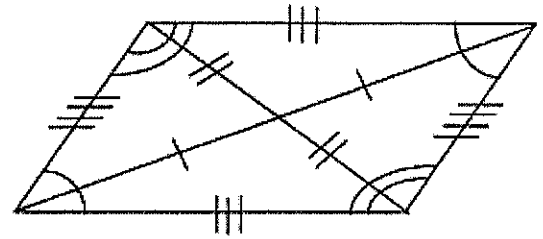


- A chart, graphic organizer, or Venn diagram can be made to organize quadrilaterals according to attributes such as sides and/or angles.

Summary Sheet Quadrilateral Properties

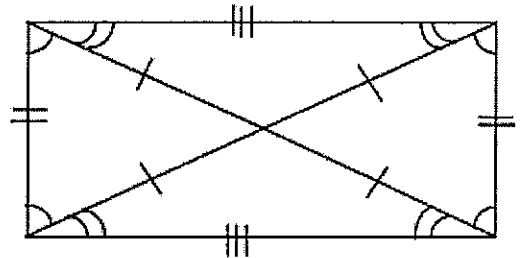
PARALLELOGRAMS (rectangles, squares, and rhombi):

- 1) Opposite sides of a parallelogram are congruent.
- 2) Opposite angles of a parallelogram are congruent.
- 3) Consecutive angles in a parallelogram are supplementary.
- 4) The diagonals of a parallelogram bisect each other.



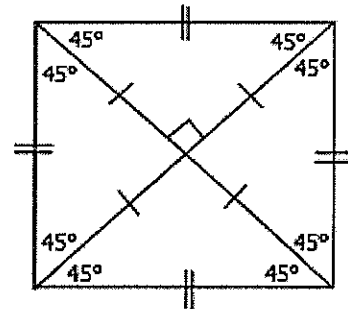
RECTANGLES:

- 1) Opposite sides are congruent (they equal each other).
- 2) Opposite angles are congruent (they equal each other).
- 3) Consecutive angles are supplementary (they add up to 180).
- 4) Diagonals bisect each other (the parts are equal).
- 5) Diagonals are congruent (they equal each other).
- 6) All four corner angles are 90° .



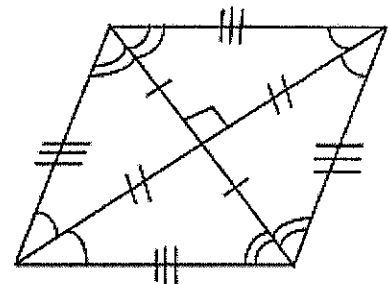
SQUARES:

- 1) Opposite sides are congruent (they equal each other).
- 2) Opposite angles are congruent (they equal each other).
- 3) Consecutive angles are supplementary (they add up to 180).
- 4) Diagonals bisect each other (the parts are equal).
- 5) Diagonals are congruent (they equal each other).
- 6) All four corner angles are 90° .
- 7) Diagonals perpendicular (the form right angles in the middle).
- 8) Diagonals bisect angles (the angles equal to each other).



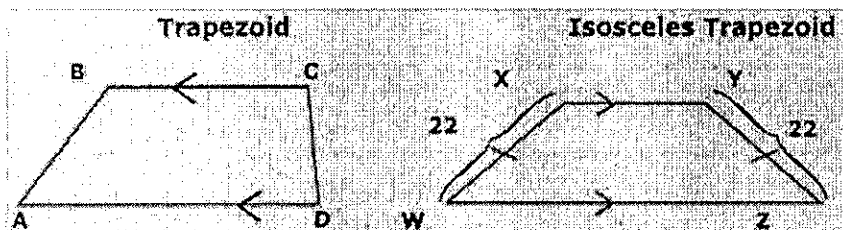
RHOMBI:

- 1) Opposite sides are congruent (they equal each other).
- 2) Opposite angles are congruent (they equal each other).
- 3) Consecutive angles are supplementary (they add up to 180).
- 4) Diagonals bisect each other (the parts are equal).
- 5) Diagonals perpendicular (the form right angles in the middle).
- 6) Diagonals bisect angles (the angles are equal to each other).
- 7) All four sides are congruent.
- 8) The diagonals are NOT congruent.



Trapezoid

- 1) One pair of opposite sides are parallel
- 2) May have one set of opposite sides are congruent (called an isosceles trapezoid)



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* Complete on Day 1*

7.1a

1. Use your knowledge of powers of ten to complete the table below.

Exponential Form	Expanded Form	Fraction Form
10^{-4}		
	$\frac{1}{10} \times \frac{1}{10} \times \frac{1}{10}$	
		$\frac{1}{100}$

2. Mrs. Austin asked students to complete the following table for homework. When she checked Jacob's homework, Mrs. Austin noticed that he wrote the incorrect fraction for each power of ten.

Exponential Form	Fraction Form	Decimal Form
10^{-5}	$\frac{1}{10000}$	0.00001
10^{-4}	$\frac{1}{1000}$	0.0001
10^{-3}	$\frac{1}{100}$	0.001
10^{-2}	$\frac{1}{10}$	0.01
10^{-1}	$\frac{1}{1}$	0.01

Write the correct fractions on the table and a short explanation of some patterns or general rules Jacob can use to determine the fraction form of powers of ten in the future.

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3. Identify each statement that is equivalent to 10^{-3}

1,000	$\frac{1}{10^3}$	-3,000	0.001
$\frac{1}{300}$	-0.003	$\frac{1}{10} \times \frac{1}{10} \times \frac{1}{10}$	$\frac{-1}{10^3}$

4. Which is equivalent to 10^{-5} ?

- A. $\frac{-1}{10^5}$ and -0.00005
- B. $\frac{1}{10^5}$ and 0.00005
- C. $\frac{-1}{10^5}$ and -0.00001
- D. $\frac{1}{10^5}$ and 0.00001

5. Which of the following is a true statement?

- A. $10^0 = 1$
- B. $10^{-1} = 0.01$
- C. $10^{-2} = 0.02$
- D. $10^{-3} = 0.03$

7.1b

1. Put the following numbers in order from least to greatest.

<p>Least</p> <p>↓</p> <p>Greatest</p>	<input type="text"/>	9.4×10^{-3}
	<input type="text"/>	2.7×10^{-4}
	<input type="text"/>	1.45×10^{-3}
	<input type="text"/>	8.35×10^{-5}

2. Write 31 million, 4 hundred and fifty-two thousand in standard form. Then, convert the number into scientific notation.

Standard Form

Scientific Notation

3. Circle all of the numbers that make the inequality statement true.

$$3.5 \times 10^3 < \underline{\hspace{2cm}} < 7.4 \times 10^6$$

1.85×10^4

5.3×10^2

4.12×10^3

6.4×10^7

3.2×10^3

9.87×10^5

7.4×10^4

8.1×10^6

4. What is 0.00000283 written in scientific notation?

- A. 2.83×10^{-8}
- B. 2.83×10^{-6}
- C. 2.83×10^6
- D. 2.83×10^8

5. Which list of numbers is written in descending order?

- A. $3.29 \times 10^4, 5.2 \times 10^2, 7.1 \times 10^4$
- B. $5.2 \times 10^2, 3.29 \times 10^4, 7.1 \times 10^4$
- C. $7.1 \times 10^4, 5.2 \times 10^2, 3.29 \times 10^4$
- D. $7.1 \times 10^4, 3.29 \times 10^4, 5.2 \times 10^2$

* Complete on Day 2 *

7.1c

1. Put the following numbers in ascending order.

$1.2\bar{9}$

1.099

1.229

1.909

2. Put the following numbers in order from greatest to least.

Greatest	<input type="text"/>
	<input type="text"/>
	<input type="text"/>
Least	<input type="text"/>

$\frac{1}{8}$

-12%

0.122

$-1\frac{2}{5}$

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3. Circle all of the numbers that make the inequality statement true.

$$0.23 < \underline{\hspace{1cm}} < 74\%$$

$$\frac{2}{5}$$

$$32\%$$

$$\frac{3}{4}$$

$$0.7\overline{4}$$

$$23\%$$

$$0.2\overline{3}$$

$$1\frac{2}{3}$$

$$\frac{2}{9}$$

$$0.458$$

$$\frac{4}{7}$$

4. Which set of numbers is listed in descending order?

A. -66% , -0.45 , $-\frac{1}{3}$, 1.8

B. -66% , $-\frac{1}{3}$, -0.45 , 1.8

C. 1.8 , -66% , -0.45 , $-\frac{1}{3}$

D. 1.8 , $-\frac{1}{3}$, -0.45 , -66%

5. Which list of numbers is written in ascending order?

A. 35% , 3.5 , $\frac{3}{5}$

B. 3.5 , 35% , $\frac{3}{5}$

C. 35% , $\frac{3}{5}$, 3.5

D. $\frac{3}{5}$, 35% , 3.5

7.1d

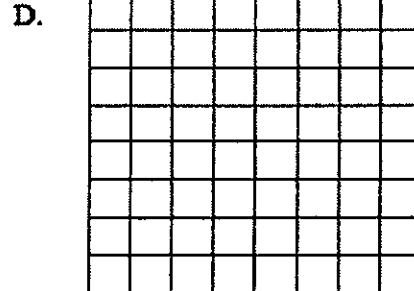
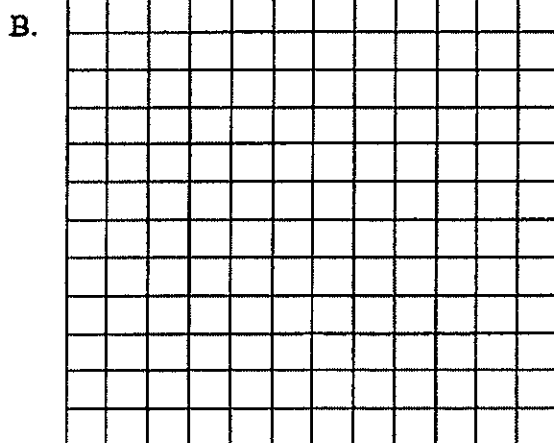
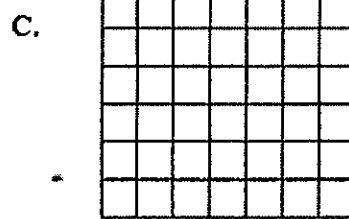
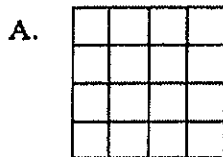
1. Identify the two perfect squares listed below.

10	24	64	163	200	265	361
----	----	----	-----	-----	-----	-----

2. Use your knowledge of perfect squares and square roots to complete the table below.

Square Root	Perfect Square
	4
3	
	16
	121
15	
	400

3. Which of the following pictures does *not* represent a perfect square?



2016 Mathematics Standards of Learning

4. Which of the following represents $\sqrt{196}$?

- A. 13
- B. 14
- C. 15
- D. 16

5. What is $\sqrt{9}$?

- A. 3
- B. 6
- C. 18
- D. 81

6. Which of the following has a square root of 16?

- A. 4
- B. 32
- C. 186
- D. 256

* Complete on Day 3 *

7.1e

1. Represent $|6|$ and $|-6|$ on the number line below.



2. What is the absolute value of zero? _____

Why? _____

3. Identify each true statement.

$$|6| = -6$$

$$8.2 = |-8.2|$$

$$-4 = |4|$$

$$|-3.5| = -3.5$$

$$|9| = -9$$

$$|-1.8| = 1.8$$

4. Evaluate the expression $-|-9|$ and write your answer in the space provided. _____

5. Two cars are parked on the number line below. The front of the blue car is parked at point -15 and the front of the red car is parked at point 25. At which point on the number line below should the front of the red car drive to in order to have the same absolute value as the blue car?



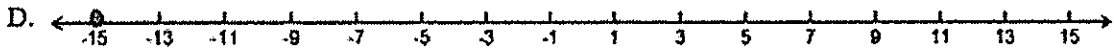
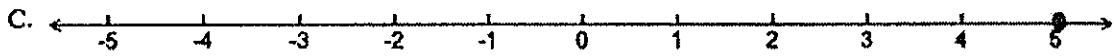
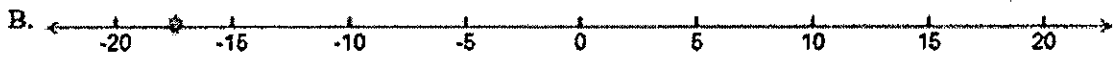
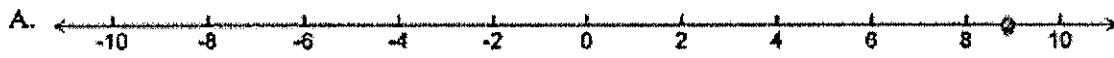
The red car must drive to point _____.

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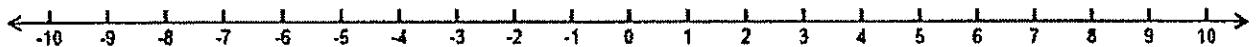
6. Absolute value is –

- A. the distance from the number and zero on a number line.
- B. represented with the symbols $| |$.
- C. always positive.
- D. all of the above.

7. Which point on the number lines below represents the greatest absolute value?



8. Draw two points on the number line below that represent the absolute value of nine.



9. The absolute value of -23 is –

- A. -23, because the absolute value of a number is that number
- B. 23, because the absolute value of a number is the number's distance from zero
- C. 23, because absolute value is the opposite of a given number
- D. 0, because the absolute value of a number is the sum of that number and its opposite

2016 Mathematics Standards of Learning

7.2

1. Five bags of apples were sold to a family of four. Each bag held six apples. If each family member ate three apples, what fraction of the original apples is left?

2. Caleb bought a pizza. He quickly ate $\frac{1}{4}$ of it. He gave $\frac{1}{2}$ of what was left to Karen.

Select all of the following that show how much Karen received.

$\frac{1}{8}$	0.75	37.5%
0.125	0.375	$\frac{1}{4}$
$\frac{3}{8}$	3.75%	12.5%

3. Kerry charges \$25.50 per lawn to cut grass on Saturdays and \$28.50 per lawn to cut grass on Sundays. If she cuts 4 lawns on Saturday and 5 lawns on Sunday, how much money will she earn?

- A. \$102
- B. \$171
- C. \$241.50
- D. \$244.50

4. Mrs. Whitaker had a bag of 28 marbles. If $\frac{1}{4}$ of the marbles were red and $\frac{3}{7}$ were yellow, how many marbles were neither red nor yellow?

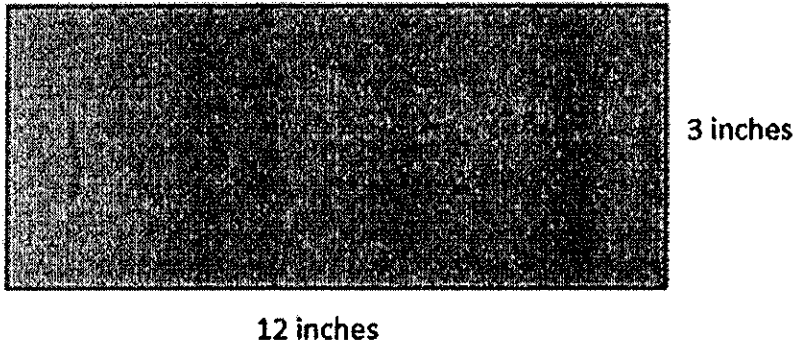
- A. 7
- B. 9
- C. 12
- D. 19

* Complete on Day 4 *

2016 Mathematics Standards of Learning

7.3

1. A scale drawing of a rectangular field is shown, with a scale of 15 yards = 1 inch.



Find the actual lengths of the sides of the field

2. The ratio of boys to girls in the schools' math team is six to seven. Which combinations of boys and girls could the team have?

Select the statements that correctly match this ratio.

Twelve Boys Fourteen Girls	Twelve Boys Twenty-one Girls	Eighteen Boys Twenty-one Girls
Eighteen Boys Fourteen Girls	Twenty-four Boys Twenty-eight Girls	Twenty-four Boys Twenty-one Girls

3. Travis is making a scale model of his home. The actual home is 45 feet long and 35 feet wide. Travis wants his model to be 15 inches in length. Which could be used to find the width of his model if he uses the same ratio?

A. $\frac{45}{15} = \frac{x}{35}$

B. $\frac{45}{15} = \frac{35}{x}$

C. $\frac{15}{45} = \frac{35}{x}$

D. $\frac{35}{45} = \frac{15}{x}$

4. The regular price of a burger meal at a certain restaurant is \$8.70. It is on sale for a 20% discount. What is the sale price of the hamburger meal?

A. \$1.74

B. \$6.96

C. \$7.83

D. \$10.44

2016 Mathematics Standards of Learning

7.10a

1. On Monday, Richard worked for 4 hours and earned \$36. On Tuesday, Richard worked for 6 hours and earned \$54. On Wednesday, Richard worked for 5 hours and earned \$45.

Are his earnings proportional?

What is the rate of change for his earnings?

Represent his earnings in a $y = mx$ function, where hours are represented by x and earnings are represented by y , and m represents the rate of change.

If Richard worked for 7 hours on Thursday, how much money would he earn?

How many hours did Richard work on Friday, when he earned \$81

2. Given:

x	y
2	2.2
4	4.4
6	6.6

Which rate of change (m), would represent this proportional relationship?

- A. $m = 0.2$
- B. $m = 1.1$
- C. $m = 2.2$
- D. $m = 2$

3. Given:

x	y
3	6.3
6	12.6
9	18.9

Which equation would represent this proportional relationship?

- A. $y = 0.2x$
- B. $y = 1.1x$
- C. $y = 2.1x$
- D. $y = 2x$

4. Which of the following represents a proportional relationship between the x - and y -values?

A.

x	y
1	5
2	6
3	7

B.

x	y
1	1
2	5
3	9

C.

x	y
2	3
4	5
6	7

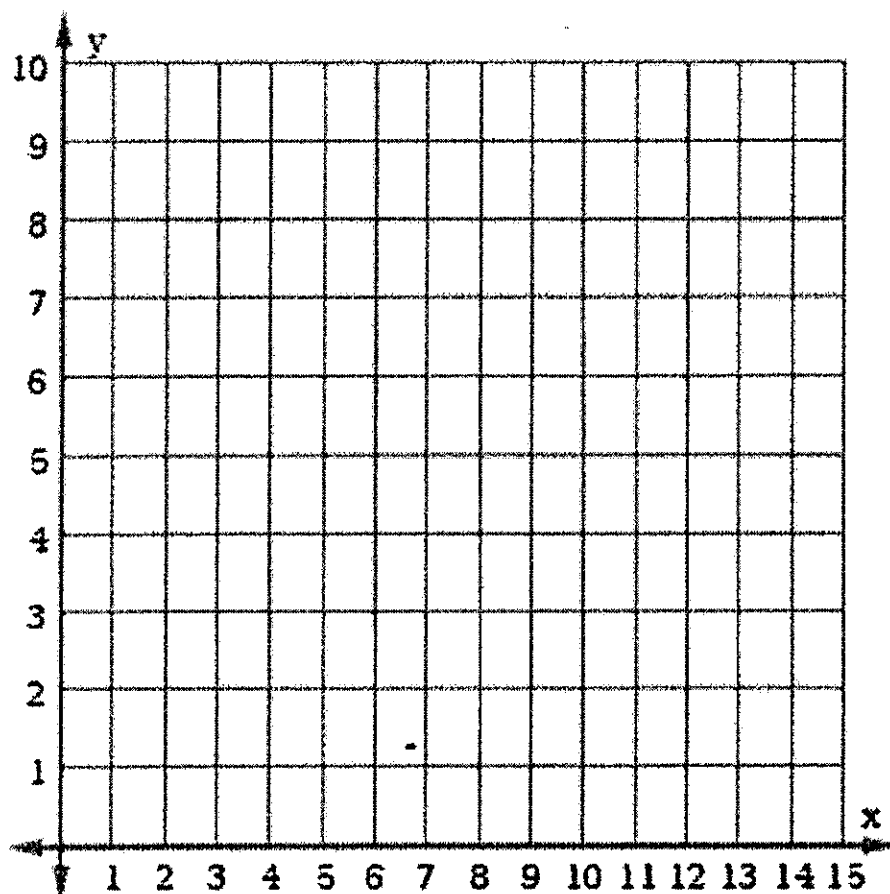
D.

x	y
2	3
4	6
6	9

2016 Mathematics Standards of Learning

7.10b

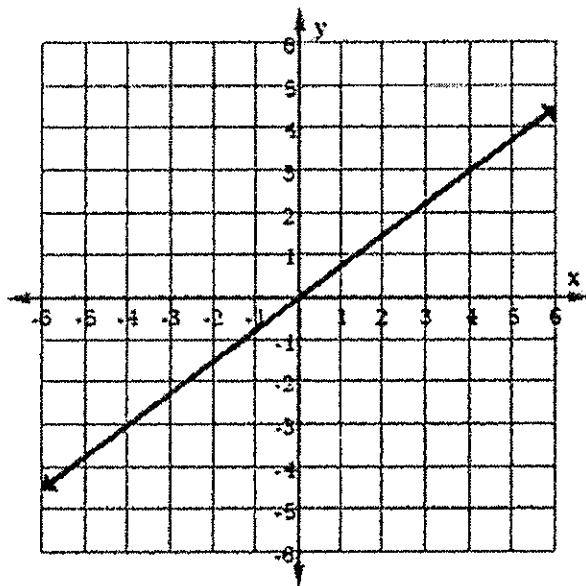
1. A line passes through $(5, 3)$ with a slope of $\frac{3}{5}$. Plot at least 3 points on this line.



2. Select three points that lie on the graph of the line $y = \frac{1}{2}x$.

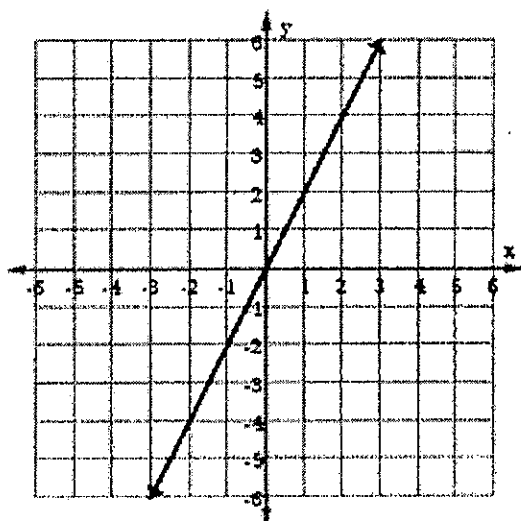
$(0, 0)$	$(1, 2)$	$(3, 6)$
$(4, 2)$	$(10, 5)$	$(4, 8)$

3. Which of the following equations represents the same proportional relationship shown in the graph?



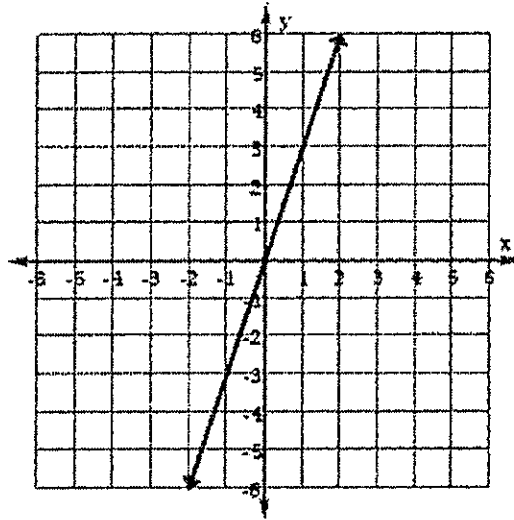
- A. $y = \frac{4}{3}x$
 B. $y = \frac{3}{4}x$
 C. $y = 3x$
 D. $y = 4x$
4. Which of the following graphs represents $y = \frac{2}{3}x$?

A.

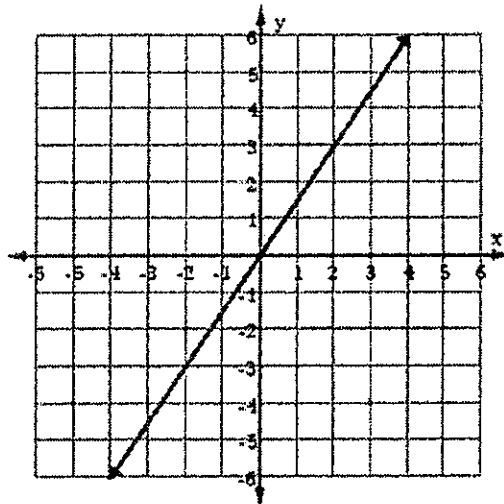


B.

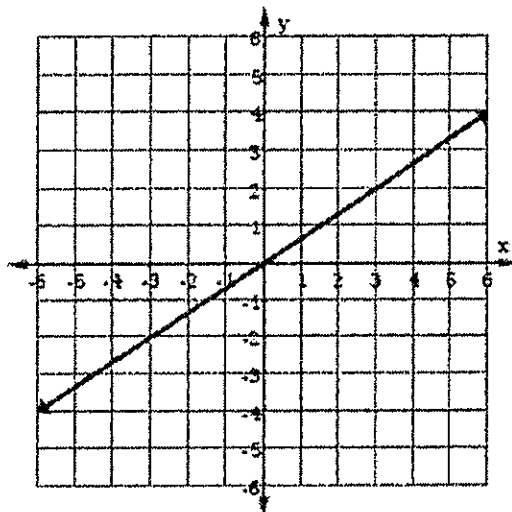
2016 Mathematics Standards of Learning



C.



D.



*** Complete on Day 5***

2016 Mathematics Standards of Learning

7.10c

1. Maria has 3 ceramic cats. She plans to buy some more. Write an equation in the form of $y = x + b$, $b \neq 0$ that could represent the total number of cats, when given the number of new cats.
2. The table below shows the relationship between x and y .

x	y
-2	-6
-1	-5
1	-3
2	-2

What is the y -intercept for this relationship?

3. The table below shows the relationship between x and y .

x	0	4	12
y	6	10	18

- a. Create a verbal description to a practical problem that represents the relationship between x and y
- b. What is the y -intercept?
- c. Write an equation in the form of $y = x + b$, $b \neq 0$

2016 Mathematics Standards of Learning

4. The table shows the relationship between Ky's age and Lu's age.

Lu's Age	1	4	10
Ky's Age	8	11	17

Which equation could be used to determine Ky's age, when given Lu's age.

- A. $y = 8x$
- B. $y = x + 7$
- C. $y = 2x + 6$
- D. $y = \frac{1}{2}x + 7.5$

5. The table below shows the relationship between x and y .

x	-3	2	5
y	-4	1	4

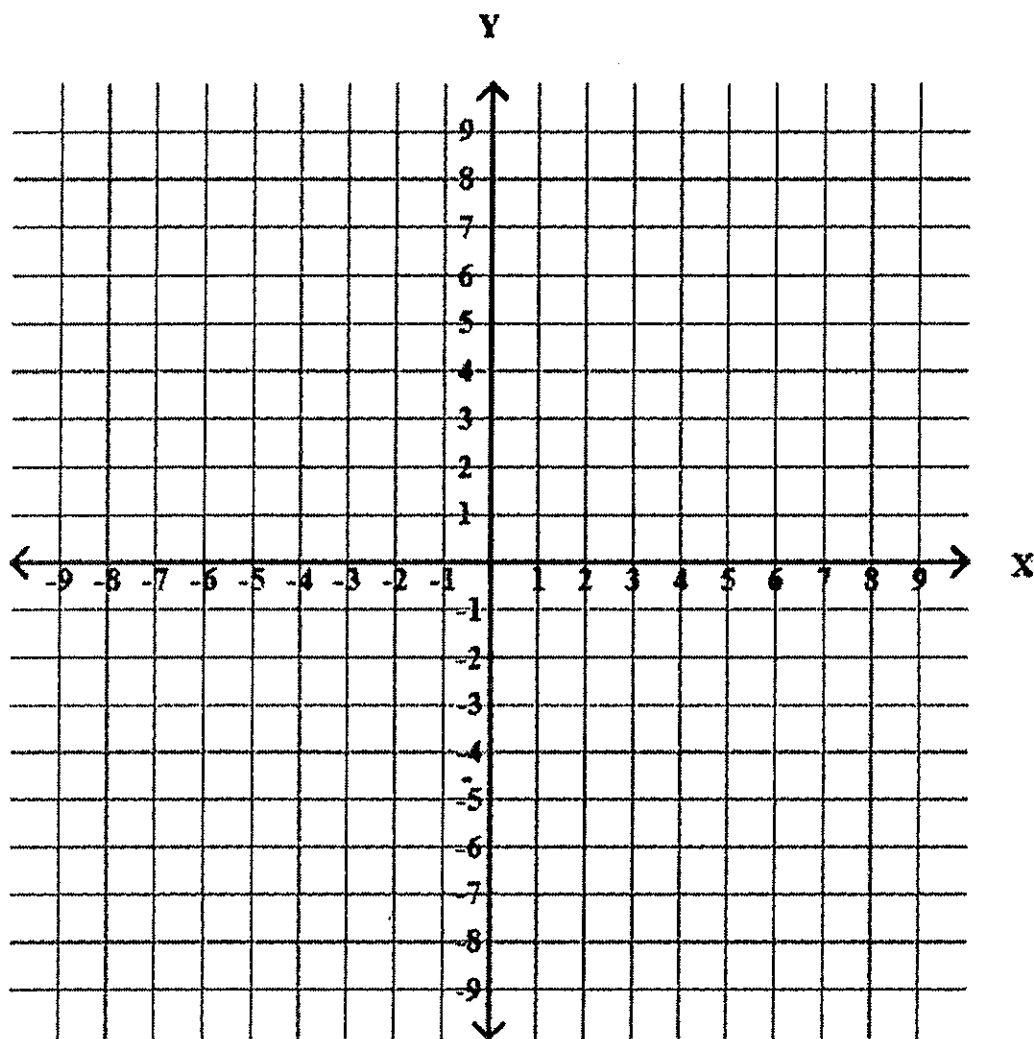
Which could be used to represent the relationship between x and y ?

- A. $y = \frac{1}{2}x$
- B. $y = x + 1$
- C. $y = x - 1$
- D. $y = 2x - 1$

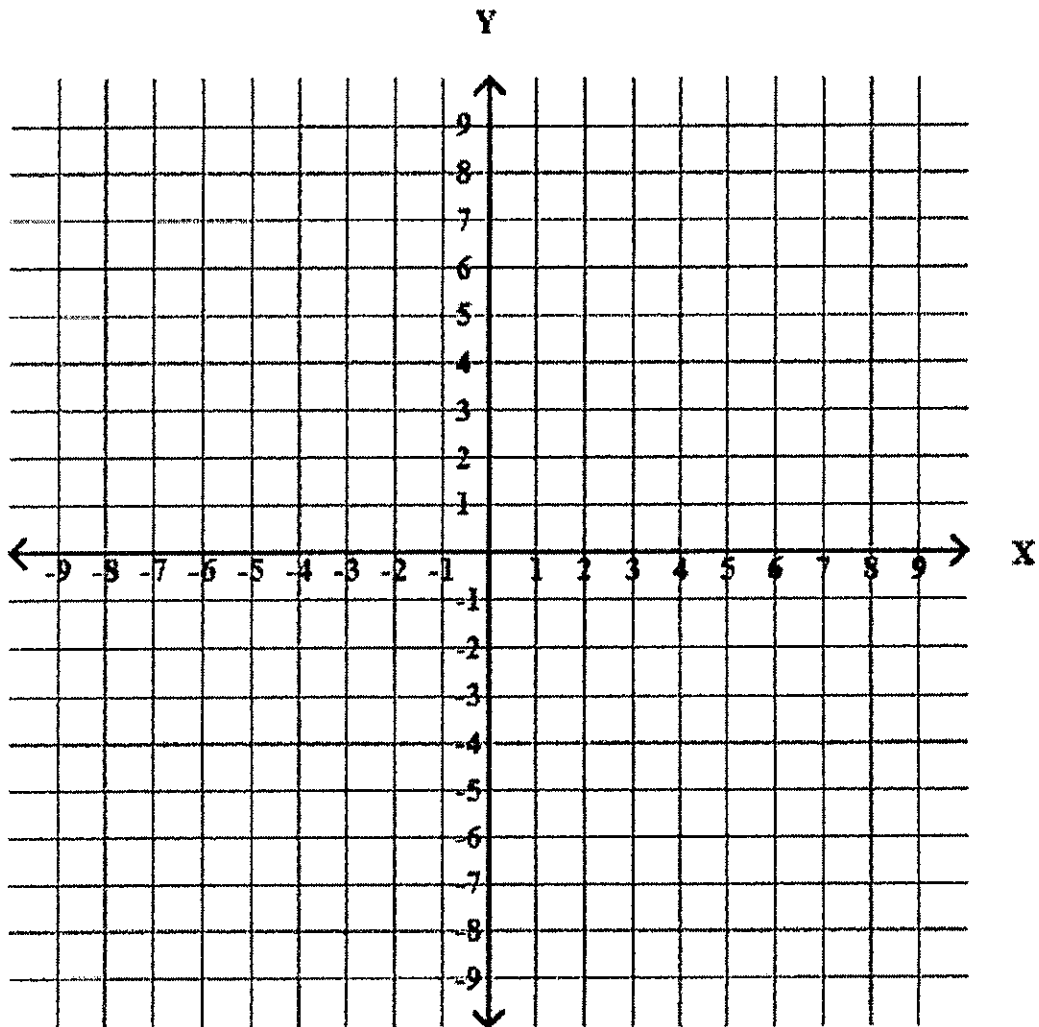
2016 Mathematics Standards of Learning

7.10d

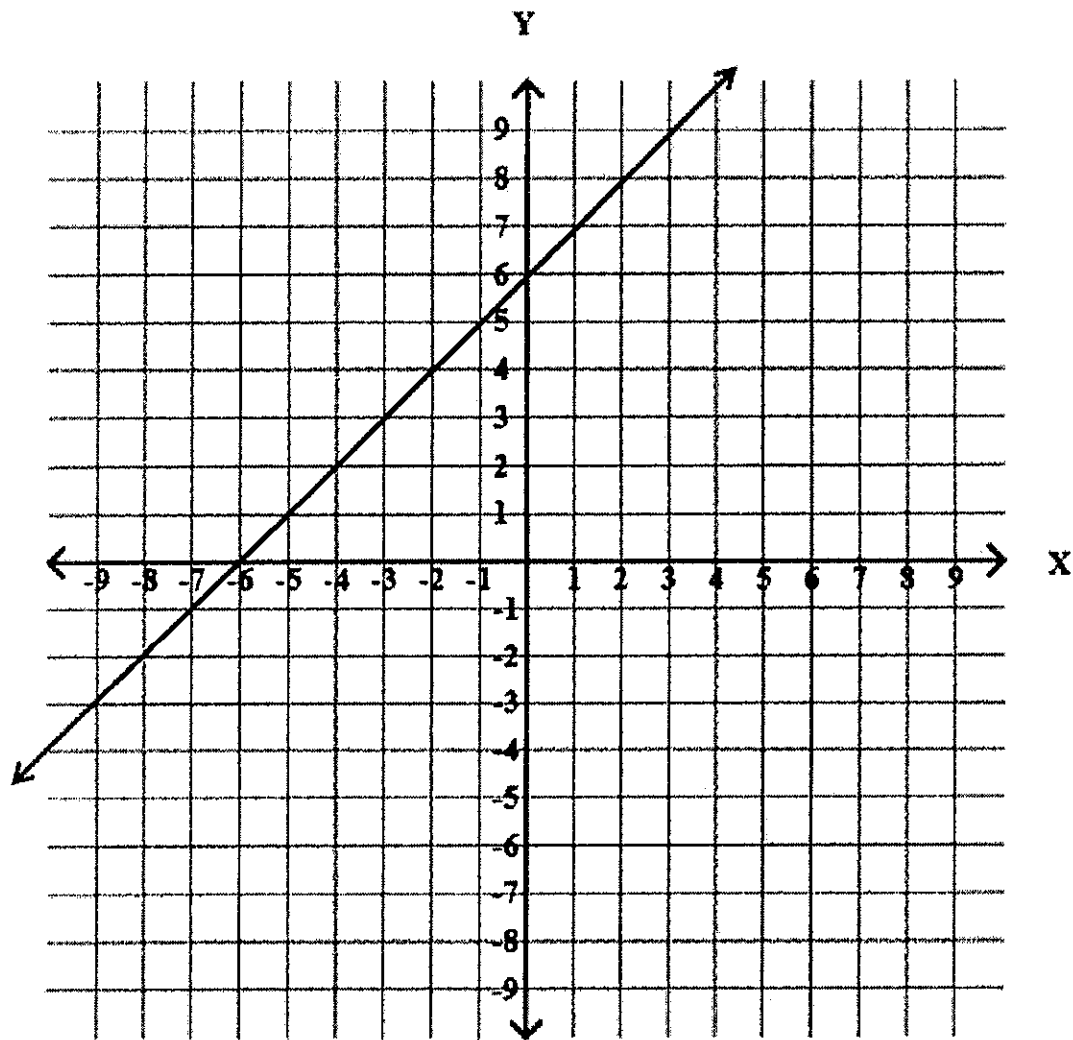
1. Graph the line that passes through the point $(3, -1)$ and has a y -intercept of -4 .



2. Graph the line $y = x - 3$



3.

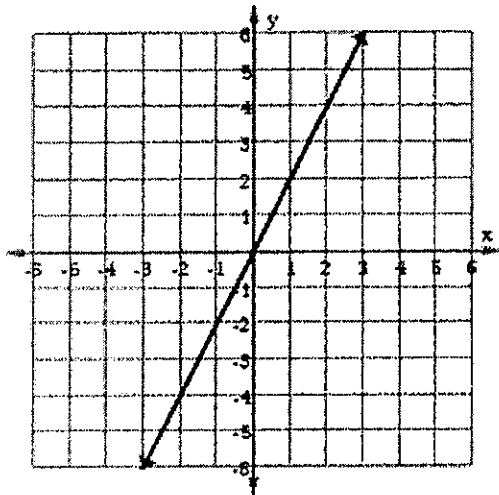


Which equation represents the same relationship shown in the graph?

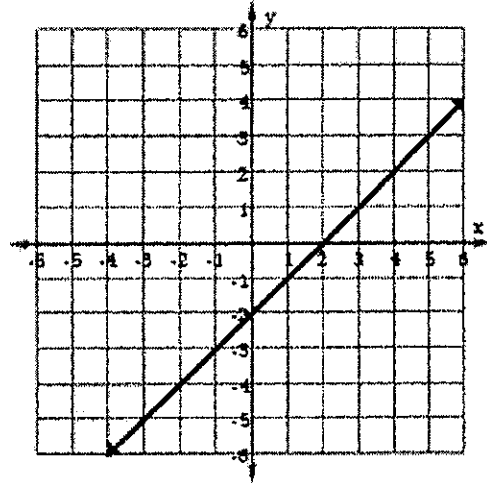
- A. $y = x - 6$
- B. $y = x + 6$
- C. $y = 6x$
- D. $y = -6x$

4. Which of the following graphs represents $y = x - 2$?

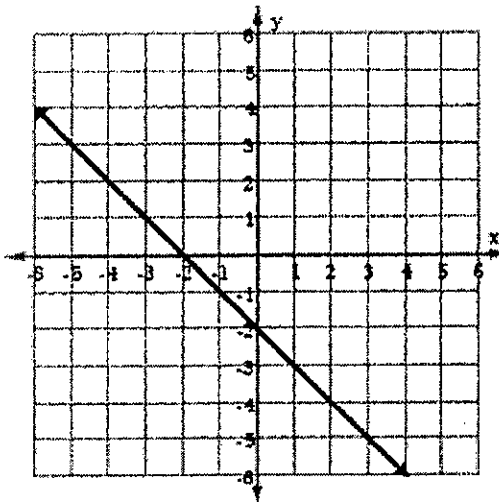
A.



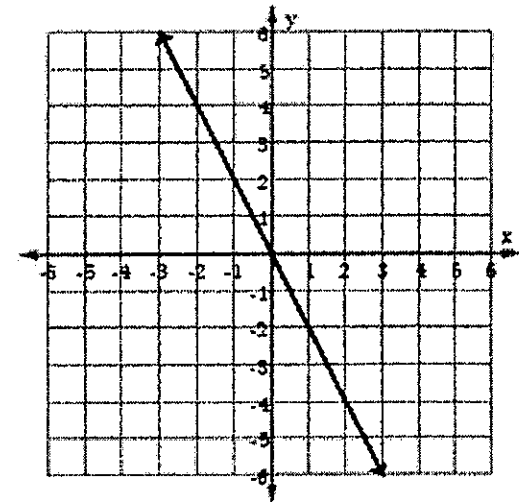
B.



C.



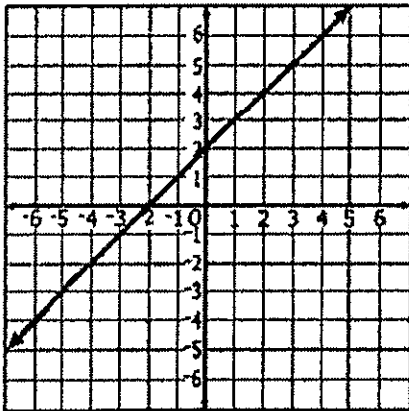
D.



2016 Mathematics Standards of Learning

7.10e

1. Steven went to play video games in Games Galore arcade. Games Galore charges \$1.50 for each game played. Represent the relationship between total cost, y , and number of games played, x using a table, graph and equation. Is this relationship a proportional or additive relationship? Explain.
2. Sam went to play video games in Video Game Central arcade. Video Game Central charges \$10 to get into the arcade and then \$1 per game played. Represent the relationship between total cost, y , and number of games played, x using a table, graph and equation. Is this relationship a proportional or additive relationship? Explain.
3. The graph represents which table of ordered pairs?



A.

x	y
-3	-5
-1	-3
2	0
4	2

B.

x	y
2	-2
4	0
-1	-3
-3	5

C.

x	y
-2	-4
0	-2
3	1
5	5

D.

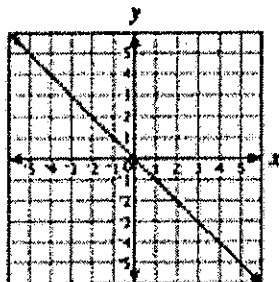
x	y
-4	-2
-2	0
1	3
3	5

4. Which graph best

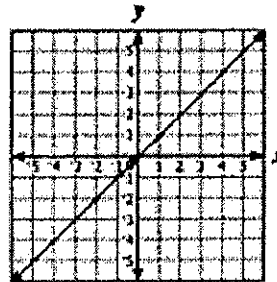
corresponds to this table of ordered pairs?

x	y
-2	-2
-1	-1
1	1
2	2

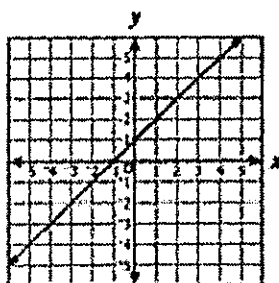
Graph A



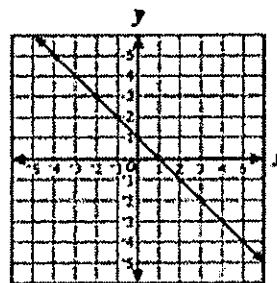
Graph B



Graph C

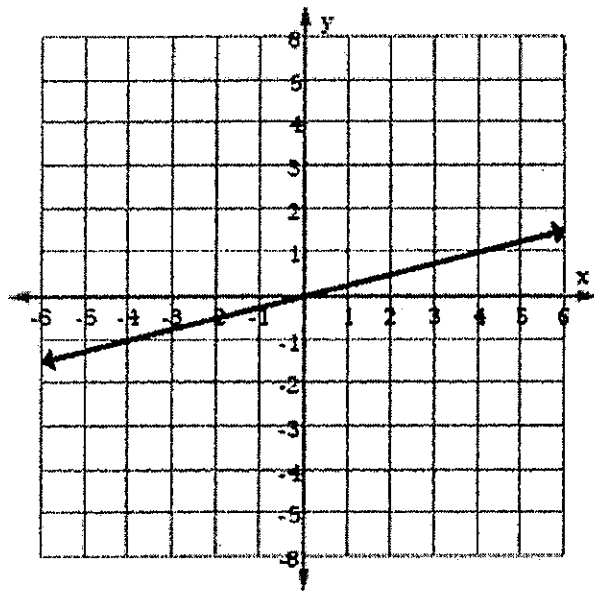


Graph D

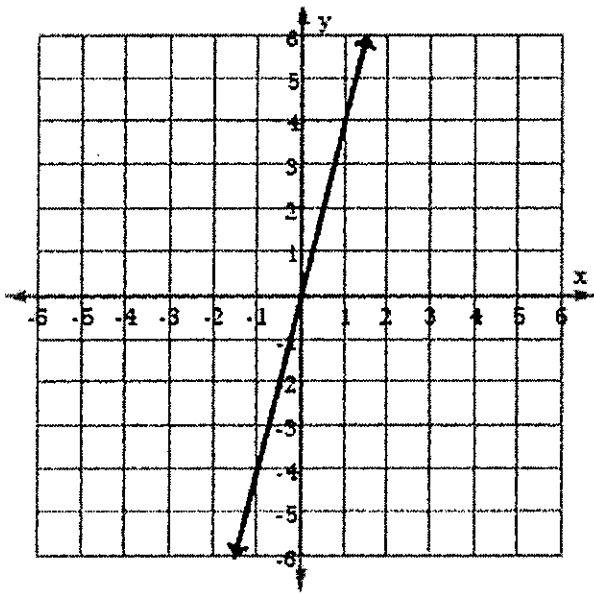


5. Which of the following graph represents the same relationship as “ y is four more than x ”?

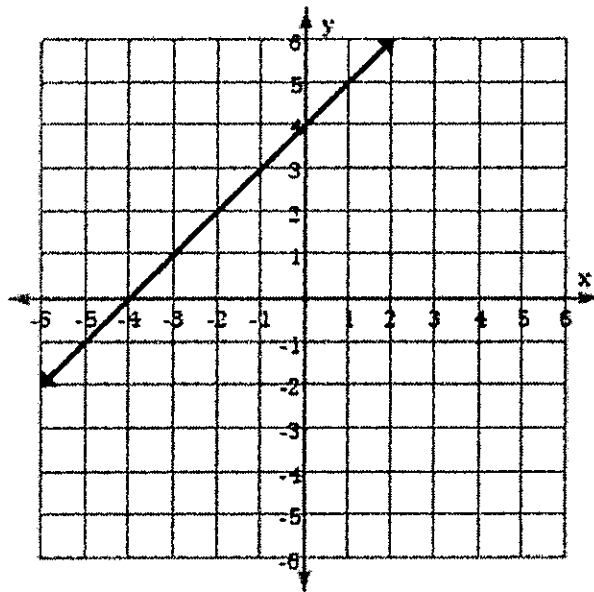
A.



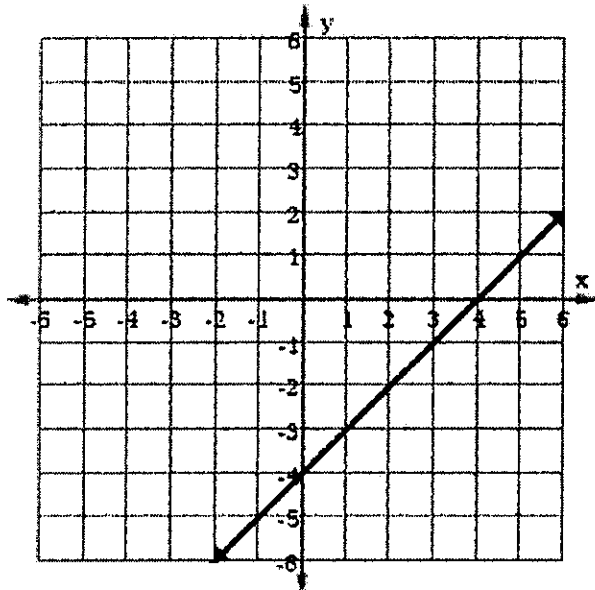
B.



C.



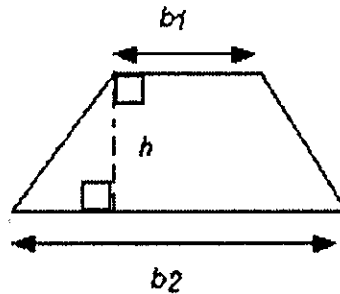
D.



* Complete on Day 6 *
7.11

1. What is the area of the trapezoid shown below if $b_1 = 14$, $b_2 = 10$, and $h = 4$?

$$\text{Area} = \frac{1}{2}h(b_1 + b_2)$$



2. What is the value of $10y + 2|3x + 2|$ if $x = -2$ and $y = 3$?
3. What is the value of $x^2 + yz$ if $x = 4$, $y = -3$, and $z = 2$?
- 2
 - 10
 - 22
 - 26
4. What is the value of $x^2 + 3x + 2$ if $x = 15$?
- 62
 - 77
 - 272
 - 276
5. The outside temperature is 10 degrees Celsius. Using the formula $F = 1.8C + 32$, what is that temperature in degrees Fahrenheit?
- 17.8 degrees Fahrenheit
 - 33.8 degrees Fahrenheit
 - 50.0 degrees Fahrenheit
 - 57.6 degrees Fahrenheit

2016 Mathematics Standards of Learning

7.12

1. Patti wants to solve for x in the equation.

$$\frac{x}{8} + 2 = 5$$

What steps should she take to solve the equation for x ?

2. Look at the following algebraic expression.

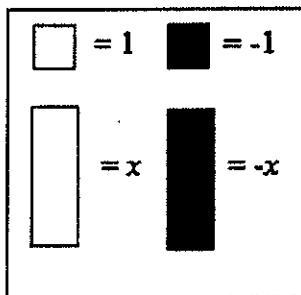
$$3x - 8$$

Write at least two different verbal expressions that represent the given algebraic expression.

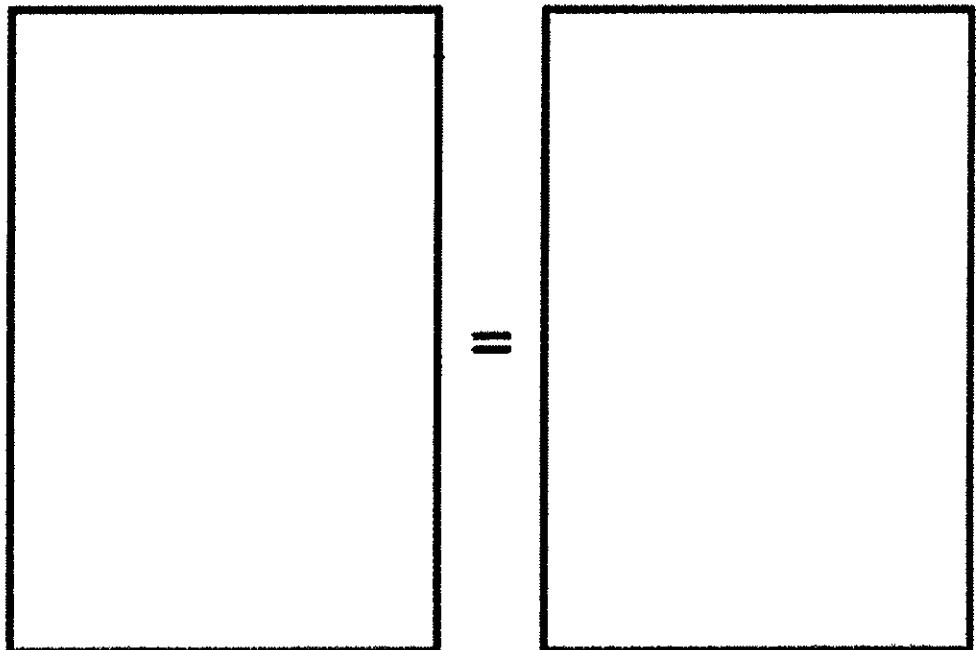
3. Using the given key and equation mat, represent and solve the following linear equation algebraically. Then, confirm your solution.

$$10 = 4 - 3x$$

Key:



Equation Mat



4. What is the solution to

$$-\frac{2}{3}x - 4 = -10$$

- A. $x = 21$
 - B. $x = 19$
 - C. $x = 11$
 - D. $x = 9$
5. Aubrey's scarf is 4 inches more than half the length of Tyrone's scarf. Aubrey's scarf is 34 inches long. How long is Tyrone's scarf?
- A. 15 inches
 - B. 60 inches
 - C. 112 inches
 - D. 128 inches
6. Which equation means "a number increased by the product of 7 and 12 is 93"?
- A. $7x + 12 = 93$
 - B. $7x + 12x = 93$
 - C. $(x + 7)(12) = 93$
 - D. $x + (7)(12) = 93$

2016 Mathematics Standards of Learning
Algebra Readiness Formative Assessment

5. James solved the inequality $-3x \leq -9$ and got $x \leq 3$. What did he do wrong?

6. Identify all numerical values that are part of the solution set for the following inequality.

$$3x - 4 \leq -16$$

-4	4.5	-5.5
4	-3.5	-4.5

7. What values for w make the following inequality true? $-4w < 12$

- A. $\{-3, -4, -5, -6, -7, \dots\}$
- B. $\{-4, -5, -6, -7, -8, \dots\}$
- C. $\{-3, -2, -1, 0, 1, \dots\}$
- D. $\{-2, -1, 0, 1, 2, \dots\}$

8. What is the solution to $2y > -8$?

- A. $y > -2$
- B. $y > -4$
- C. $y > -6$
- D. $y > -10$

* Complete on Day 7 *

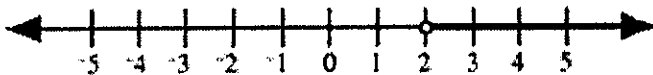
7.13

1. Solve the following two-step inequality.

$$\frac{x-9}{2} < -10$$

2. Look at the number line below.

The number line represents the graph of which inequality?



- A. $3 > 2t - 1$
 B. $5 < 3t + 11$
 C. $6 < 2t + 2$
 D. $8 > 2t - 4$
3. Select the statement that correctly represents the inequality below.
- “Twice a number increased by 14 is at least the opposite of 10”
- A. $2n + 14 \leq -10$
 B. $2n + 14 \geq -10$
 C. $2n + 14 \leq 10$
 D. $2n + 14 \geq 10$
4. A truck can carry a maximum of 1,350 pounds of weight. How many 250-pound scoops (d) of dirt can the truck carry?
- A. $d > 5$
 B. $d \geq 5$
 C. $d < 5$
 D. $d \leq 5$

7.1a

1. Look at this table.

Power of 10	Value
10^3	1,000
10^2	100
10^1	10
10^0	1
10^{-1}	$\frac{1}{10}$
10^{-2}	$\frac{1}{100}$

What would be the value of 10^{-3} ?

A $\frac{1}{101}$

B $\frac{1}{1,000}$

C $\frac{1}{1,001}$

D $\frac{1}{10,000}$

7.1a

2. What fraction and decimal have the same value as 10^{-2} ?

A $\frac{1}{10}$; 0.1

B $\frac{1}{100}$; 0.01

C $\frac{1}{200}$; 0.02

D $\frac{1}{1,000}$; 0.001

7.1b

3. What number belongs in the blank?

$$1.36 \times 10^5 < \underline{\hspace{2cm}} < 7.87 \times 10^7$$

A 1.95×10^4

B 8.9×10^4

C 1.22×10^6

D 8.1×10^7

7.1b

4. Which of the following numbers is the smallest?

A 9.05×10^6

B 1.25×10^7

C 9.5×10^5

D 8.91×10^7

7.1c

5. Which of the following does NOT contain equivalent fractions, decimals, and percents?

A $\frac{2}{5}$, 0.4, 40%

B $\frac{1}{4}$, 0.25, 25%

C $\frac{3}{8}$, 0.375, 37.5%

D $\frac{1}{20}$, 0.05, 50%

7.1c

6. John ate 3 out of 8 apples. Which of the following represents how many apples John ate?

A $\frac{3}{8}$; 0.38; 38%

B $\frac{8}{3}$; 0.83; 83%

C $\frac{3}{8}$; 0.375; 3.75%

D $\frac{3}{8}$; 0.375; 37.5%

7.1d

7. What is $\sqrt{256}$?

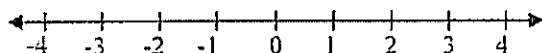
- A 14
- B 16
- C 18
- D 20

7.1d

8. Which is equivalent to $\sqrt{169}$?

- A 338
- B 83
- C 19
- D 13

7.1e

9. Here is a number line.**What is $|-2|$?**

- A -4
- B -2
- C 0
- D 2

7.1e

10. What numbers have an absolute value of 10?

- A 10 and 0
- B 10 and 100
- C 10 and -10
- D 100 and -100

* Complete on Day 8 *

Grade 7

7.2

11. A map of the Eastern United States has a scale of 1 inch for 50 miles. The cities of New Haven, CT and Washington, DC are 4.8 inches apart on the map. What is the actual distance between them?

A 48 miles
B 50 miles
C 240 miles
D 420 miles

7.2

12. The results of a random survey showed that 42 out of 80 people plan to vote for Mr. Vu for city council. Which is the best prediction of the total number of votes he will receive if 2,000 people vote?

A 25
B 50
C 120
D 1,000

7.2

13. Tami is 5.2 feet tall. Her shadow is 4 feet long. At the same time of day, an oak tree in her yard cast a 20-foot shadow. How tall is the tree?

A 16 feet
B 19 feet
C 21 feet
D 26 feet

7.3

14. The blueprint for Jessica's new room has a scale that states every $\frac{1}{4}$ inch is actually equal to 15 inches. If this blueprint shows the length of her new room to be $3\frac{1}{5}$ inches, what will be the actual length of her new room?

A 16 feet
B 48 feet
C 60 feet
D 192 feet

7.3

15. Suzanne is signing autographs at the opening night of her new play. She can sign 10 autographs in 15 minutes. Which of the following proportions could be used to find out how many minutes, m , it will take Suzanne to sign 40 autographs?

A $\frac{m}{10} = \frac{15}{40}$

B $\frac{15}{m} = \frac{40}{10}$

C $\frac{10}{15} = \frac{40}{m}$

D $\frac{40}{15} = \frac{10}{m}$

7.3

16. The length of Paul's desk is 38.5 inches. If one inch is about 2.5 centimeters, how long does Paul's desk measure in centimeters?

- A 15.4 centimeters
- B 15.6 centimeters
- C 96.3 centimeters
- D 96.5 centimeters

7.6a

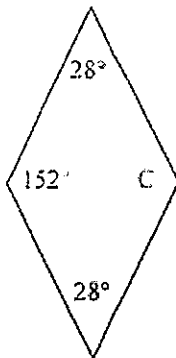
25. Choose the answer that correctly identifies *only the true statements* from the following list.

- I. A parallelogram is a quadrilateral with opposite sides congruent and parallel.
- II. A rectangle is a square and a polygon.
- III. A rectangle is a parallelogram with four right angles.
- IV. A square is a rhombus.
- V. A trapezoid has three parallel sides.

- A I, II
- B III, V
- C I, II, III
- D I, III, IV

7.6b

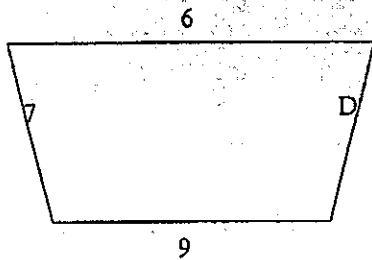
26. What is the measure of angle C in this figure?



- A 28°
- B 124°
- C 152°
- D 180°

7.6b

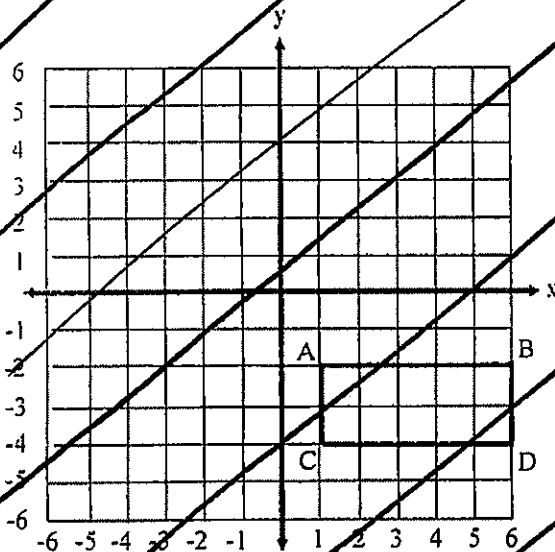
27. What is the length of side D in the isosceles trapezoid below?



- A 6
- B 7
- C 9
- D 22

7.7

28. Rectangle ABCD is plotted on the coordinate plane below.



If rectangle ABCD is translated left 7 units and down 1 unit, what will be the coordinates of Point C'?

- A (6, -5)
- B (-6, 5)
- C (-6, -5)
- D (-5, -6)

7.10a

38. What is the rate of change, m , in this relationship?

Number of Carnations (C)	Price (P)
3	\$4.50
4	\$6.00
5	\$7.50
6	\$9.00
7	\$10.50

- A** $m = 1.5$
B $m = 3$
C $m = 4.5$
D $m = 7$

7.10a

39. What equation could represent the relationship between x and y ?

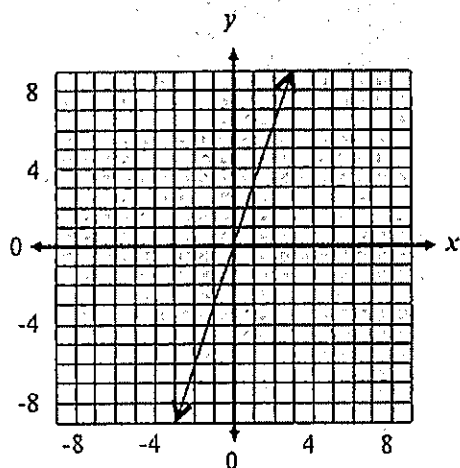
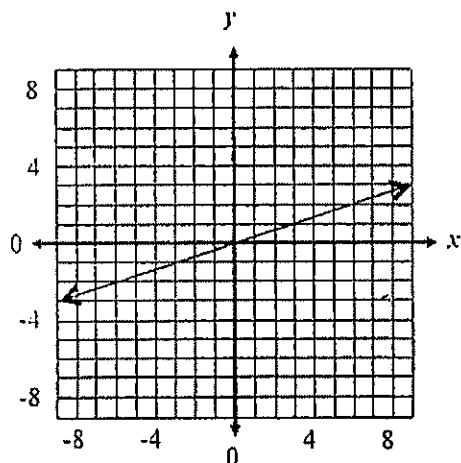
x	y
2	6
3	9
5	15
8	24
11	33

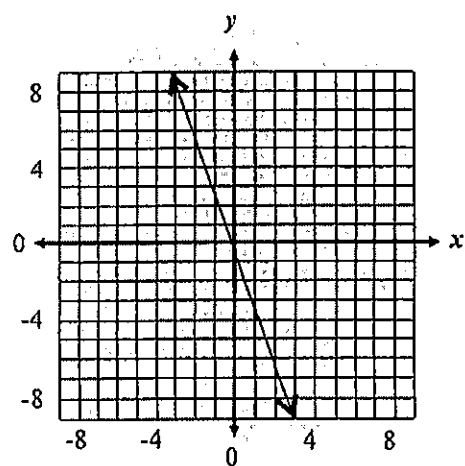
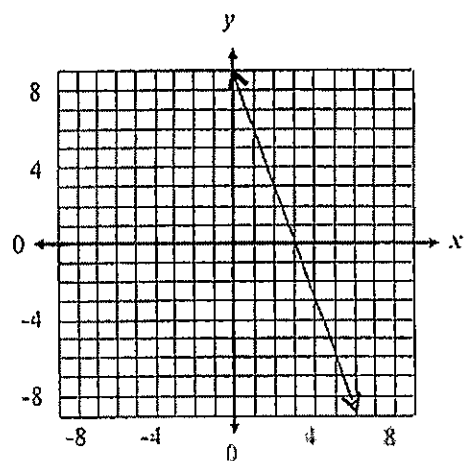
- A** $y = x$
B $y = 2x$
C $y = 3x$
D $y = 5x$

* Complete on Day 9 *

7.10b

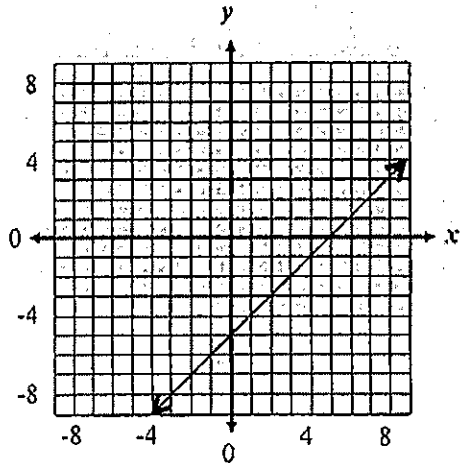
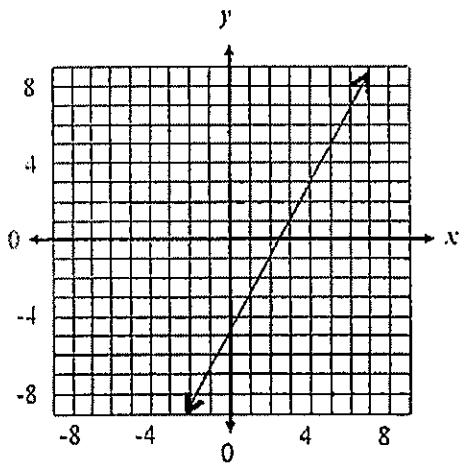
40. Which of the following graphs shows the line $y = -3x$?

A**B**

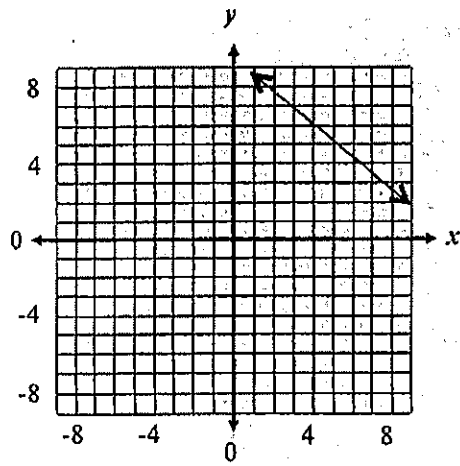
C**D**

7.10b

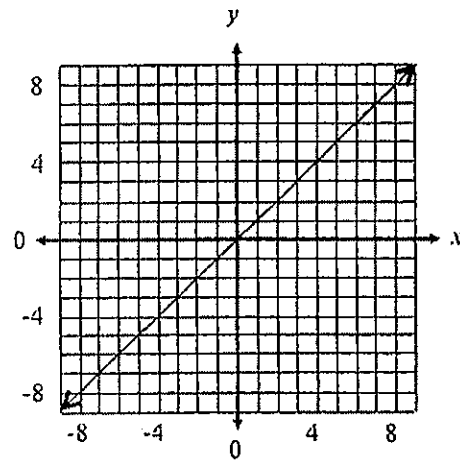
41. Which of the following graphs shows a line with a slope of 1 passing through (5, 5)?

A**B**

C



D



7.10c

42. What is the y -intercept, b , in this relationship?

x	y
1	8
2	15
6	43
7	50
9	64

- A $b = 1$
- B $b = -1$
- C $b = 3$
- D $b = 7$

7.10c

43. Which equation could be used to describe the data in the table below?

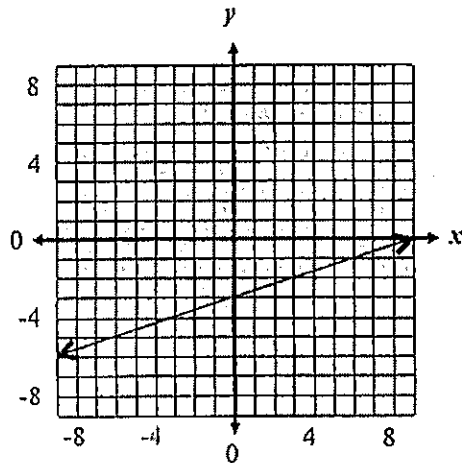
x	3	4	7	8	12
y	12	15	24	27	39

- A $x + 9$
- B $2x + 6$
- C $3x + 3$
- D $4x - 2$

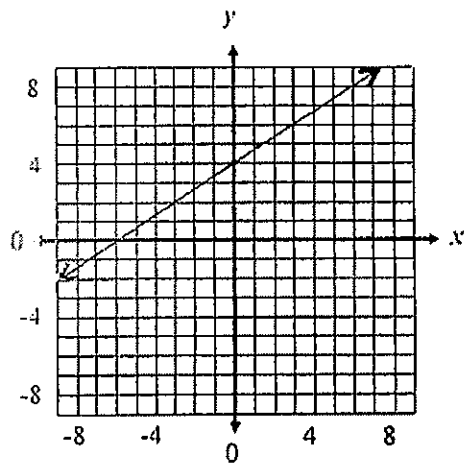
7.10d

44. Which of the following graphs shows a line with a y -intercept of 4 passing through $(3, -2)$?

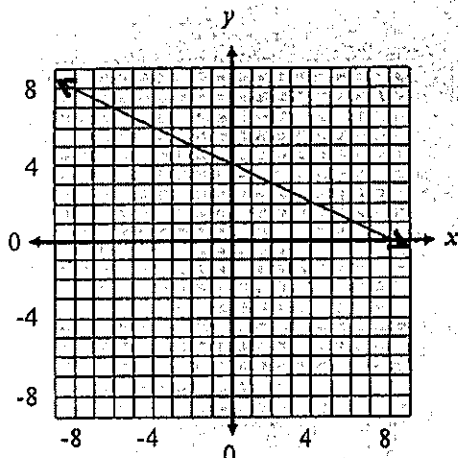
A



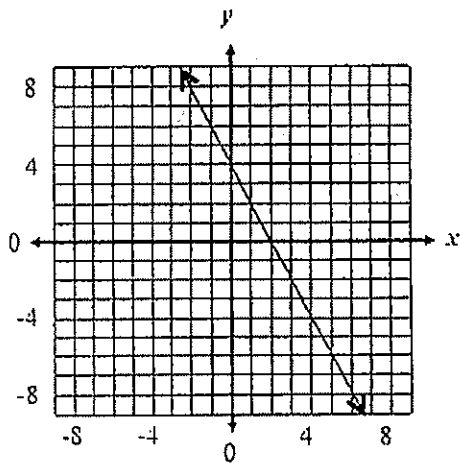
B



C



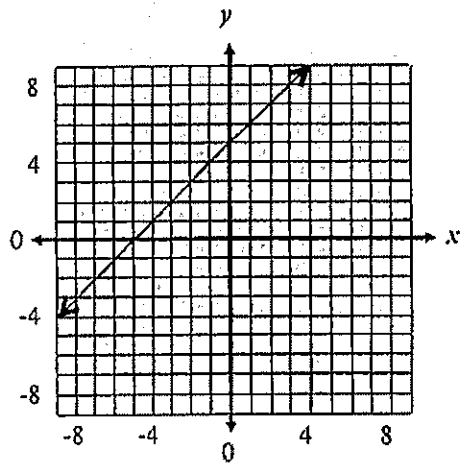
D



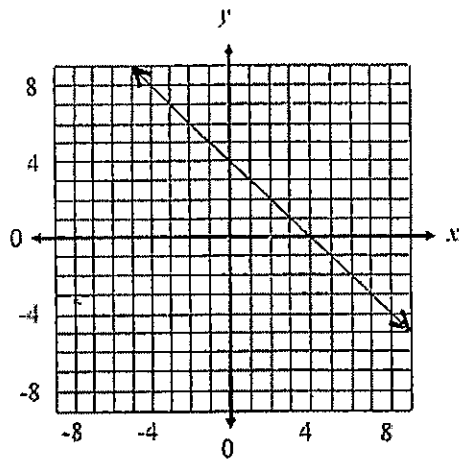
7.10d

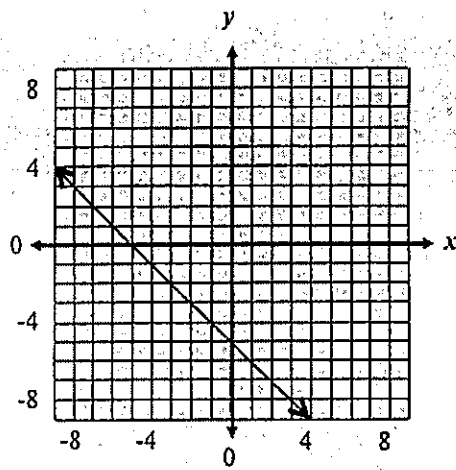
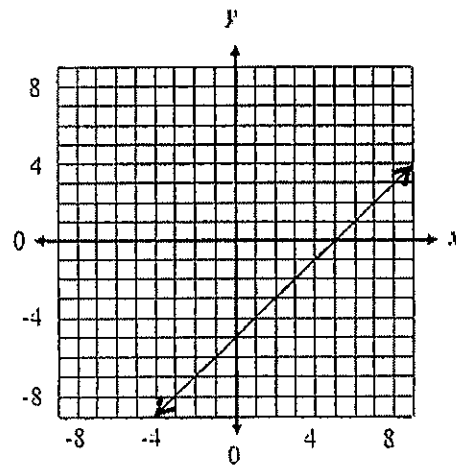
45. Which of the following graphs shows the line $y = x - 5$?

A



B



C**D**

7.10e

46. Which table could NOT be used to graph $y = 4x + 2$?

A

x	y
-3	-14
0	0
3	14

B

x	y
-1	-2
0	2
1	6

C

x	y
1	6
2	10
3	14

D

x	y
2	10
0	2
4	18

* Complete on Day 10 *

7.11

47. The volume of a five-sided box is given by the formula $2x + 3x^2 - xy + y^2$, where x is the length of each side and y is the height of the box.

What is the volume when $x = 4$ and $y = 2$?

- A 44
- B 48
- C 52
- D 58

7.11

48. What is the value of $4 - y(2y - 1)$, when $y = -2$?

- A -6
- B -2
- C 14
- D 20

7.11

49. Evaluate $\frac{a^2 + b^2}{2} + 8.5$, if $a = 3$, $b = 4$.

- A 15.5
- B 21
- C 25.5
- D 33

7.12

50. Two cats and a dog together weigh 65 pounds. The dog weighs 47 pounds. Both cats weigh the same amount. How much does each cat weigh?

- A 6 pounds
- B 9 pounds
- C 18 pounds
- D 36 pounds

7.12

51. What value of x makes the equation $\frac{x}{4} + 5 = 11$ true?

- A 64
- B 32
- C 24
- D -64

7.12

52. Solve the equation: $4n - 3 = 21$

- A $n = -3$
- B $n = 6$
- C $n = 3$
- D $n = -5$

7.13

53. What is the solution to $-\frac{1}{2}x < -120$?

- A $x > -60$
- B $x < 60$
- C $x < 240$
- D $x > -240$

7.13

54. Mrs. Corbett rented a truck to move some furniture. The rental charge is \$60 plus \$0.25 per mile. She wants to spend no more than \$180, not including tax. What is the maximum number of miles that she can drive the truck?

- A 85 miles
- B 360 miles
- C 480 miles
- D 720 miles

7.13

55. Which is the solution to $-9x > 18$?

