HL ALGEBRA I

SUMMER PACKET

CONWELL-EGAN CATHOLIC HIGH SCHOOL

This summer assignment is a review and exploration of key skills that are necessary for success in your mathematics course as well as future high school mathematics courses.

All summer packets are due on the Friday of the first full week of school.

Fractions

(Addition, Subtraction, Multiplication, and Division)

Miscellaneous

Write the fractions in lowest terms.

1. $\frac{8}{24}$

2. $\frac{18}{24}$

3. $\frac{15x^2y}{20xy}$

4. $\frac{36abc^4}{45a^3bc^2}$

Solve for x.

5. $\frac{16}{48} = \frac{x}{12}$

6. $\frac{12}{42} = \frac{4}{x}$

7. $\frac{20}{32} = \frac{x}{16}$

8. $\frac{6}{9} = \frac{12}{x}$

Write as improper fractions.

9. $2\frac{1}{3}$

10. $-4\frac{6}{7}$

Write as mixed numbers.

11. $-\frac{9}{4}$

12. $\frac{38}{3}$

Addition and Subtraction

Find each sum or difference. Write your answer in simplest form.

13. $-\frac{2}{3}+\frac{1}{4}$

14. $3\frac{5}{9}+2\frac{1}{6}$

15. $\frac{3}{10}-\frac{4}{5}$

16. $6\frac{7}{10}+\left(-1\frac{1}{5}\right)$

17. $5\frac{4}{11}-2\frac{2}{3}$

18. $2\frac{7}{12}-9\frac{2}{3}$

Multiplication and Division

Find each product or quotient. Write your answer in simplest form.

19. $-\frac{5}{6}\cdot\frac{6}{15}$

20. $-\frac{3}{4}\div\left(-\frac{9}{16}\right)$

21. $2\frac{2}{5}\cdot\left(-3\frac{3}{4}\right)$

22. $-3\frac{3}{4}\div 4\frac{2}{3}$

23. $\frac{2}{9}\cdot\frac{3}{16}\cdot\frac{3}{6}$

24. $6\frac{3}{4}\div 4$

Decimal Operations

Hints/Guide:

When adding and subtracting decimals, the key is to line up the decimals above each other, add zeroes so all of the numbers have the same place value length, then use the same rules as adding and subtracting whole numbers. The answer will have a decimal point in line with the problem.

For example:

$$34.5 + 6.72 + 9.045 = \begin{array}{r} 34.5 \\ 6.72 \\ \underline{9.045} \\ 50.265 \end{array}$$

To multiply decimals, the rules are the same as with multiplying whole numbers, until the product is determined and the decimal point must be located. The decimal point is placed the same number of digits in from the right side of the product as the number of decimal place values in the numbers being multiplied. For example,

8.54 · 17.2, since 854 · 172 is 146888, then we count the number of decimal places in the factors (3) and move in from the right three places, so the final product is 146.888

To divide decimals by a whole number, the division process is the same as for whole numbers, but the decimal points are lined up in the dividend and the quotient. For example, to divide 51.06 by 3, the process is the same as if the problem were 5,106 divided by 3, with the decimal point from the quotient moving up into the quotient to create the final answer of 17.02

$$3\overline{)51.06} = 17.02$$

Exercises: Perform the indicated operation No Calculators!

SHOW ALL WORK. Use a separate sheet of paper (if needed) and staple to this page.

1. 15.709 + 2.34 + 105.06 =

2. 64.308 + 164.18 + 1005.7 =

3. 87.4 – 56.09 =

4. 500.908 – 4.72 =

5. 6108.09 – 2004.704 =

6. 9055.3 – 242.007 =

7. $\begin{array}{r} 63 \\ \times\ .04 \end{array}$

8. $\begin{array}{r} .87 \\ \times\ .23 \end{array}$

9. $\begin{array}{r} 8.904 \\ \times\ \ 2.1 \end{array}$

10. $\begin{array}{r} 4.2 \\ \times\ .602 \end{array}$

11. $35\overline{)70.35}$

12. $14\overline{)50.512}$

13. $23\overline{)74.888}$

Rename Fractions, Percents, and Decimals

Hints/Guide:

To convert fractions into decimals, we start with a fraction, such as $\frac{3}{5}$, and divide the numerator (the top number of the fraction) by the denominator (the bottom number of the fraction). So:

$5\overline{)3.0}$ $\quad .6$ and the fraction $\frac{3}{5}$ is equivalent to the decimal 0.6

To convert a decimal to a percent, we multiply the decimal by 100 (percent means a ratio of a number compared to 100). A short-cut is sometimes used of moving the decimal point two places to the right (which is equivalent to multiplying a number by 100), so $0.6 \cdot 100 = 60$ and $\frac{3}{5} = 0.6 = 60\%$.

To convert a percent to a decimal, we divide the percent by 100,
60% is the same as $60 \div 100$, which is 0.6, so $60\% = 0.6$

To convert a fraction into a percent, we can use proportions to solve, so
$\frac{3}{5} = \frac{x}{100}$ and using cross products to solve, $5x = 300$ or $x = 60\%$

Exercises: Complete the chart

	Fraction	Decimal	Percent
1.		0.04	
2.			125%
3.	$\frac{2}{3}$		
4.		1.7	
5.			0.6%
6.	$3\frac{1}{2}$		
7.		0.9	
8.			70%
9.	$\frac{17}{25}$		
10.		0.007	

Find Percent of a Number

Hints/Guide:

To determine the percent of a number, we must first convert the percent into a decimal by dividing by 100 (which can be short-cut by moving the decimal point in the percentage two places to the left), then multiplying the decimal by the number. For example:

$$4.5\% \text{ of } 240 = 4.5\% \cdot 240 = 0.045 \cdot 240 = 10.8$$

Exercises: Solve for n.

SHOW ALL WORK. Use a separate sheet of paper (if needed) and staple to this page.

1. 30% of 40 = n
2. 7.5% of 42 = n
3. 150% of 320 = n
4. 15% of 54 = n
5. 0.65% of 320 = n
6. 80% of 9 = n
7. 9% of 7 = n
8. 150% of 38 = n
9. 215% of 348 = n
10. 70% of 30 = n

Solve Problems Using Percents

Hints/Guide:

When solving percent problems, we apple the rules for finding percent of a number in realistic situations. For example, to ding the amount of sales tax on a $450.00 item if the tax rate is 5%, we find 5% of 450 (.05 · 450 = 22.5), and then label our answer in dollars, getting $22.50.

Exercises: Solve the following items.
SHOW ALL WORK. Use a separate sheet of paper (if needed) and staple to this page.

1. Susie has just bought a pair of jeans for $49.95, a sweater for $24.50, and a jacket for $85.95. The sales tax is 5%. What is her total bill?

2. Jack bought a set of golf clubs for $254.00 and received a rebate of 24%. How much was the rebate?

3. A construction manager calculates it will cost $2,894.50 for materials for her next project. She must add in 12.5% for scrap and extras. What will be the total cost?

4. The regular price for a video game system is $164.50 but is on sale for 30% off. What is the amount of the discount?

   What is the sale price?

5. Cindy earns a 15% commission on all sales. On Saturday, she sold $985.40 worth of merchandise. What was the amount of commission she earned on Saturday?

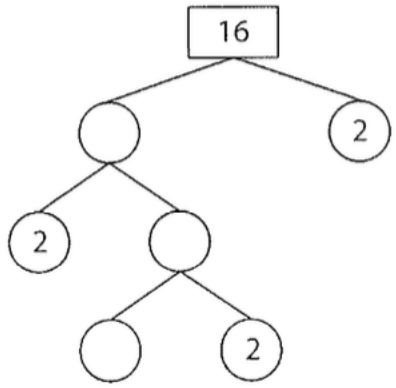
6. The band had a fundraiser and sold $25,800 worth of candy. They received 38% of this amount for themselves. How much did they receive?

Prime Factor Tree

ES1

Complete the prime factor tree for each number.

1)



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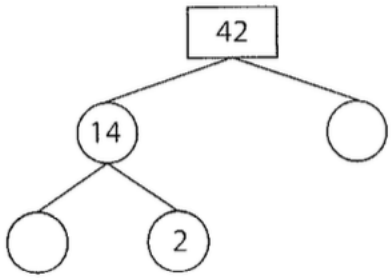

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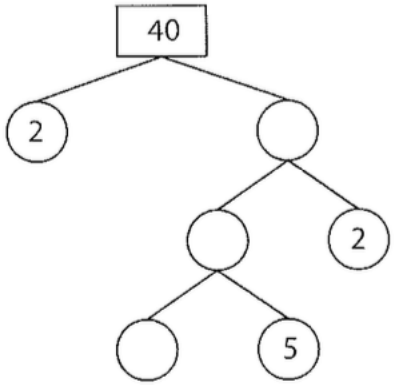

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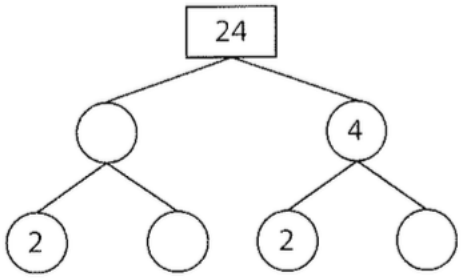

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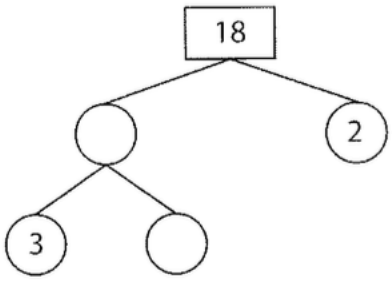

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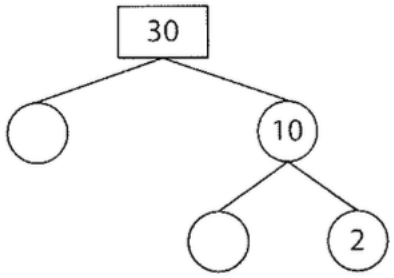
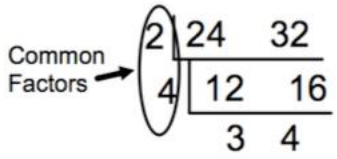


GCF & LCM

Example:

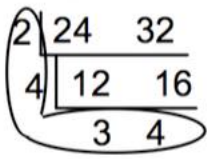
Find the Greatest Common Factor (GCF) and Least Common Multiple (LCM) of 24 and 32.

GCF



GCF= 2 x 4 = 8

LCM



LCM = 2 x 4 x 3 x 4 = 96

Exercises:

Find the GCF.

1. 42, 60

2. $24xy^2, 42xy$

3. $27x^2y^2, 45x^2$

4. 11, 21

Find the LCM

5. 27, 18

6. 15x, $18xy$

7. $9x^2y, 15xy^2$

8. 64, 48

EXAMPLE Simplifying Expressions

Simplify the expressions by using only positive exponents.

a. $5^0x^2 = (1)x^2$ Definition of a zero exponent

$= x^2$ Multiply.

b. $\frac{7x^{-2}}{x^4} = 7x^{-2-4}$ Quotient of Powers Property

$= 7x^{-6}$ Simplify.

$= \frac{7}{x^6}$ Definition of a negative exponent

c. $\frac{(5n)^2 \cdot 5n^2}{5^4} = \frac{5^2n^2 \cdot 5n^2}{5^4}$ Power of a Product Property

$= \frac{5^{2+1}n^{2+2}}{5^4}$ Product of Powers Property

$= \frac{5^3n^4}{5^4}$ Simplify.

$= 5^{3-4}n^4$ Quotient of Powers Property

$= 5^{-1}n^4$ Simplify.

$= \frac{n^4}{5}$ Definition of a negative exponent

Evaluate the expression.

1. $(-7)^2 \cdot (-7)^{-2}$
2. 6^{-2}
3. $\left(\frac{1}{2}\right)^0 2^4$
4. $\frac{3^2 \cdot 3^{-1}}{3^5}$

Simplify. Write the expression using only positive exponents.

5. $\frac{4^2x^{-7}}{x^{-3}}$
6. $(-4x^{-2}y)(-2x^{-3}y^3)$
7. $\frac{3n^{-2}}{n^3}$
8. $\frac{z^3 \cdot z^{-5}}{4}$

EXAMPLE Simplifying an Expression

Simplify $\frac{m^4}{m^2} \cdot \frac{m^7}{m^3}$. Write your answer as a power.

$\frac{m^4}{m^2} \cdot \frac{m^7}{m^3} = m^{4-2} \cdot m^{7-3}$ Quotient of Powers Property

$= m^2 \cdot m^4$ Simplify.

$= m^{2+4}$ Product of Powers Property

$= m^6$ Simplify.

EXAMPLE Finding a Power of a Quotient

Simplify $\left(\frac{a}{3}\right)^3$.

$\left(\frac{a}{3}\right)^3 = \frac{a^3}{3^3}$ Power of a Quotient Property

$= \frac{a^3}{27}$ Simplify.

Simplify the expression. Write your answer as a power.

1. $\frac{(-3)^5}{(-3)^2}$
2. $\frac{n^7}{n^3}$
3. $\frac{3.4^{13}}{3.4^6}$

Simplify the expression. Write your answer as a power.

4. $\frac{c^5 \cdot c^4}{c^3}$
5. $\frac{p^{18}}{p^5 \cdot p^7}$
6. $\frac{k^4 \cdot k^8}{k^5}$

Simplify the expression. Write your answer as a power.

7. $\frac{a^6}{a^3} \cdot \frac{a^5}{a^2}$
8. $\frac{b^{10}}{b^4} \cdot \frac{b^8}{b^6}$
9. $\frac{m^{14}}{m^7} \cdot \frac{m^{17}}{m^{13}}$

Simplify the expression.

10. $\left(\frac{4}{s}\right)^4$
11. $\left(\frac{t}{8}\right)^2$
12. $\left(\frac{b}{5}\right)^3$

Integers II

Hints/Guide:

The rules for multiplying integers are:

Positive · Positive = Positive	Negative · Negative = Positive
Positive · Negative = Negative	Negative · Positive = Negative

The rules for dividing integers are the same as multiplying integers

Exercises: Solve the following problems.

1. $4 \cdot (-3) \cdot 6 =$
2. $5\ (-12) \cdot (-4) =$
3. $(4)(-2)(-3) =$
4. $\dfrac{(-5)(-6)}{-2} =$
5. $\dfrac{6(-4)}{8} =$
6. $\dfrac{-56}{2^3} =$
7. $6\ (-5 - (-6)) =$
8. $8\ (-4 - 6) =$
9. $-6\ (9 - 11) =$
10. $\dfrac{-14}{2} + 7 =$
11. $8 - \dfrac{-15}{-3} =$
12. $-3 + \dfrac{-12 \bullet (-5)}{4} =$
13. $\dfrac{-6 - (-8)}{-2} =$
14. $-7 + \dfrac{4 + (-6)}{-2} =$
15. $45 - 14\ (5 - (-3)) =$
16. $(-4 + 7)\ (-16 + 3) =$
17. $16 - (-13)\ (-7 + 5) =$
18. $\dfrac{4 + (-6) - 5 - 3}{-6 + 4} =$

Solving Equations II

Hints/Guide:

The key in equation solving is to isolate the variable, to get the letter by itself. In two-step equations, we must undo addition and subtraction first, then multiplication and division. Remember the golden rule of equation solving: If we do something to one side of the equation, we must do the exact same thing to the other side. Examples:

1. $4x - 6 = -14$

$+6 \quad +6$

$\underline{4x} \quad = \underline{-8}$

$4 \qquad 4$

$x = -2$

Solve: $4(-2) - 6 = -14$

$-8 - 6 = -14$

$-14 = -14$

2. $\frac{x}{-6} - 4 = -8$

$+4 \quad +4$

$-6 \bullet \frac{x}{-6} = -4 \bullet -6$

$x = 24$

Solve: $(24/-6) - 4 = -8$

$-4 - 4 = -8$

$-8 = -8$

Exercises: Solve the following problems: No Calculators!

SHOW ALL WORK. Use a separate sheet of paper (if necessary) and staple to this page.

1. $-4t - 6 = 22$
2. $\frac{m}{-5} + 6 = -4$
3. $-4r + 5 = -25$
4. $\frac{x}{-3} + (-7) = 6$
5. $5g + (-3) = -12$
6. $\frac{y}{-2} + (-4) = 8$

Solving Equations III

Hints/Guide:

When solving equations that include basic mathematical operations, we must simplify the mathematics first, then solve the equations. For example:

$$5(4-3)+7x=4(9-6)$$
$$5(1)+7x=4(3)$$
$$5+7x=12$$
$$-5 \quad -5$$
$$\frac{7x}{7}=\frac{7}{7}$$
$$x=1$$

Check: $5(4-3)+7(1)=4(9-6)$
$5+7=4(3)$
$12=12$

Exercises: Solve the following equations using the rules listed on the previous pages:
SHOW ALL WORK. Use a separate sheet of paper (if necessary) and staple to this page.

1. $4x+8-6=2(9-2)$
2. $\frac{t}{5}-7+31=8(6-4)$
3. $5(t-4)=9(7-3)$
4. $9-5(4-3)=-16+\frac{x}{3}$
5. $6t-9-3t=8(7-4)$
6. $7(6-(-8))=\frac{t}{-4}+2$
7. $7(3-6)=6(4+t)$
8. $4r+5r-6r=15+6$
9. $3(5+x)=5(7-(-2))$

Equations - Variables on Each Side

Hints/Guide:

As we know, the key in equation solving is to isolate the variable. In equations with variables on each side of the equation, we must combine the variables first by adding or subtracting the amount of one variable on each side of the equation to have a variable term on one side of the equation. Then, we must undo the addition and subtraction, then multiplication and division. Remember the golden rule of equation solving. Examples:

$$\begin{aligned} 8x - 6 &= 4x + 5 \\ -4x \quad & \quad -4x \\ 4x - 6 &= \quad 5 \\ +6 \quad & \quad +6 \\ \frac{4x}{4} &= \frac{11}{4} \\ x &= 2\frac{3}{4} \end{aligned}$$

$$\begin{aligned} 5 - 6t &= 24 + 4t \\ +6t \quad & \quad +6t \\ 5 \quad & = 24 + 10t \\ -24 \quad & \quad -24 \\ \frac{-19}{10} &= \frac{10t}{10} \\ -1\frac{9}{10} &= t \end{aligned}$$

Exercises: Solve the following problems: No Calculators!

SHOW ALL WORK. Use a separate sheet of paper (if necessary) and staple to this page.

1. $4r - 7 = 8r + 13$
2. $14 + 3t = 5t - 12$
3. $4x + 5 = 3(x - 1)$
4. $6y + 5 = 4y - 13$
5. $5x - 8 = 6 - 2x$
6. $7p - 8 = -2(2p + 3)$

Problem Solving

Exercises: Solve each problem.
SHOW ALL WORK. Use a separate sheet of paper (if necessary) and staple to this page.

1. The Acme Supply Store sells a security system for $2150.00 excluding tax. They sold 12 systems. If the total profit on these sales was $4824.36, how much did each system cost Acme Supply? Show your work.

2. Kristen is paid $5.60 per hour. She works 6 hours on Saturday, 3 hours on Sunday, and 5 hours on Monday. On Saturday her hourly rate in $1\frac{1}{2}$ times her regular rate and she is paid twice the regular rate on Sunday. How much did she earn in all? Show all work.

3. At the beginning of the week the value of a stock was 32½. On Monday it fell ½, on Tuesday it rose 1½, on Wednesday it rose 3, on Thursday it fell 2, and on Friday it rose 2½. What was the value of the stock at the end of the week? Show all work.

4. Norma is paid $4.80 per hour. She worked 3½ hours on Friday, 4 hours on Saturday, and 2½ hours on Sunday. On Saturday, her hourly rate was 1½ times her regular pay and on Sunday, it was twice the regular rate. How much did she earn in all? Show all work.

5. The formula which converts Fahrenheit degrees (F) to Celsius degrees (C) is:
   $C = \frac{5}{9}(F - 32)$. How many degrees Celsius is 113 F?

6. The formula for the perimeter of a rectangle is $P = 2(l + w)$. If the length is 8 inches and the width is 7 inches, determine the perimeter of the rectangle.

Inequalities

Hints/Guide:

In solving inequalities, the solution process is very similar to solving equalities. The goal is still to isolate the variable, to get the letter by itself. However, the one difference between equations and inequalities is that when solving inequalities, when we multiply or divide by a negative number, we must change the direction of the inequality. Also, since an inequality as many solutions, we can represent the solution of an inequality by a set of numbers or by the numbers on a number line.

Inequality - a statement containing one of the following symbols:

$<$ is less than $>$ is greater than $\leq$ is less than or equal to

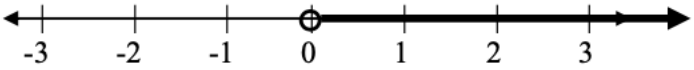
$\geq$ is greater than or equal to _ is not equal to

Examples:

1. Integers between -4 and 4.

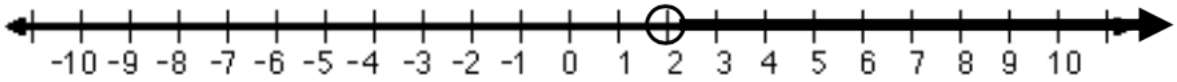
2. All numbers between -4 and 4.

3. The positive numbers.



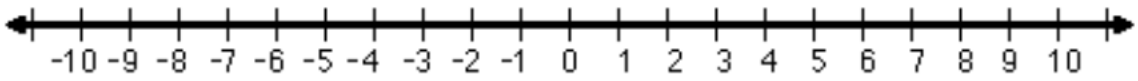
So, to solve the inequality $-4x < -8$ becomes $\frac{-4x}{-4} < \frac{-8}{-4}$

and therefore $x > 2$ is the solution (this is because whenever we multiply or divide an inequality by a negative number, the direction of the inequality must change) and can be represented as:

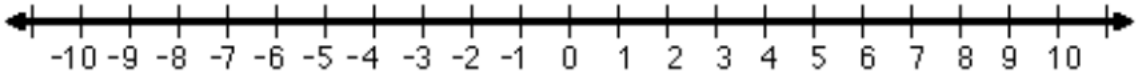


Exercises: Solve the following problems: No Calculators!

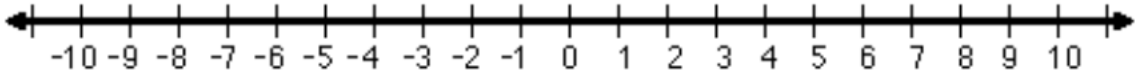
1. $4x > 9$



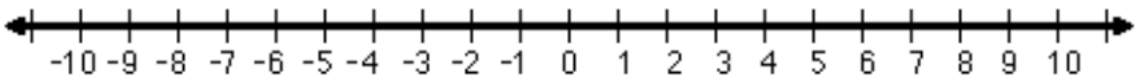
2. $-5t \geq -15$



3. $\frac{x}{2} \geq 3$



4. $\frac{x}{-4} > 2$



Domain and Range - Ordered pairs

A) Find the domain and range of each relation.

1) {(1, −1), (2, −3), (0, 5), (−1, 3), (4, −5), (−1, 5), (4, −4)}

Domain : _____

Range : _____

2) {(3, −2), (−8, −7), (0, 6), (−3, 4), (6, −3), (−1, 6), (5, −3)}

Domain : _____

Range : _____

3) {(10, −5), (−16, −8), (15, 9), (−4, 19), (6, −7)}

Domain : _____

Range : _____

4) {(5, −4), (7, −9), (0, 9), (−12 , 3), (9, 4), (−6, −3), (8, 2)}

Domain : _____

Range : _____

5) {(17, −9), (10, −5), (8, 3), (8, 4), (6, −14)}

Domain : _____

Range : _____

6) {(5, 5), (3, 8), (5, 4), (7, 5), (13, 8), (6, 2)}

Domain : _____

Range : _____

7) {(19, 12), (11, 5), (2, 2), (−4, 16), (6, 5), (−2, 1), (3, −3)}

Domain : _____

Range : _____

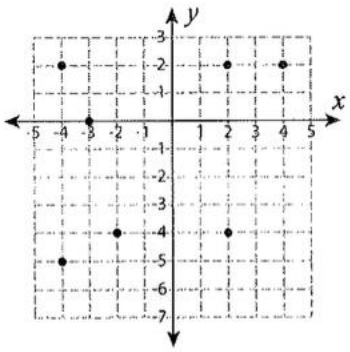
8) {(3, −2), (−3, −2), (1, 4), (−6, 5), (1, 3), (−20, 7)}

Domain : _____

Range : _____

B) Find the domain and range of ordered pairs represented on the graph.

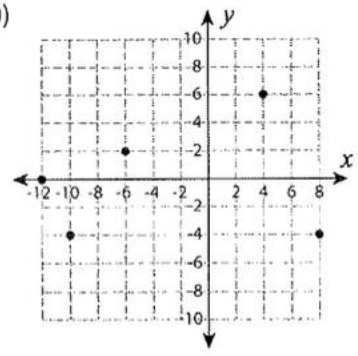
9)



Domain : _____

Range : _____

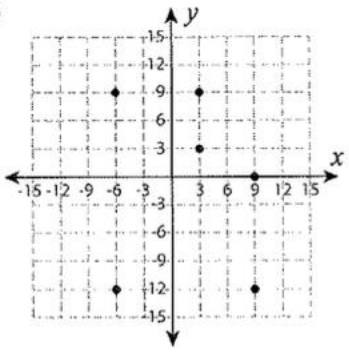
10)



Domain : _____

Range : _____

11)

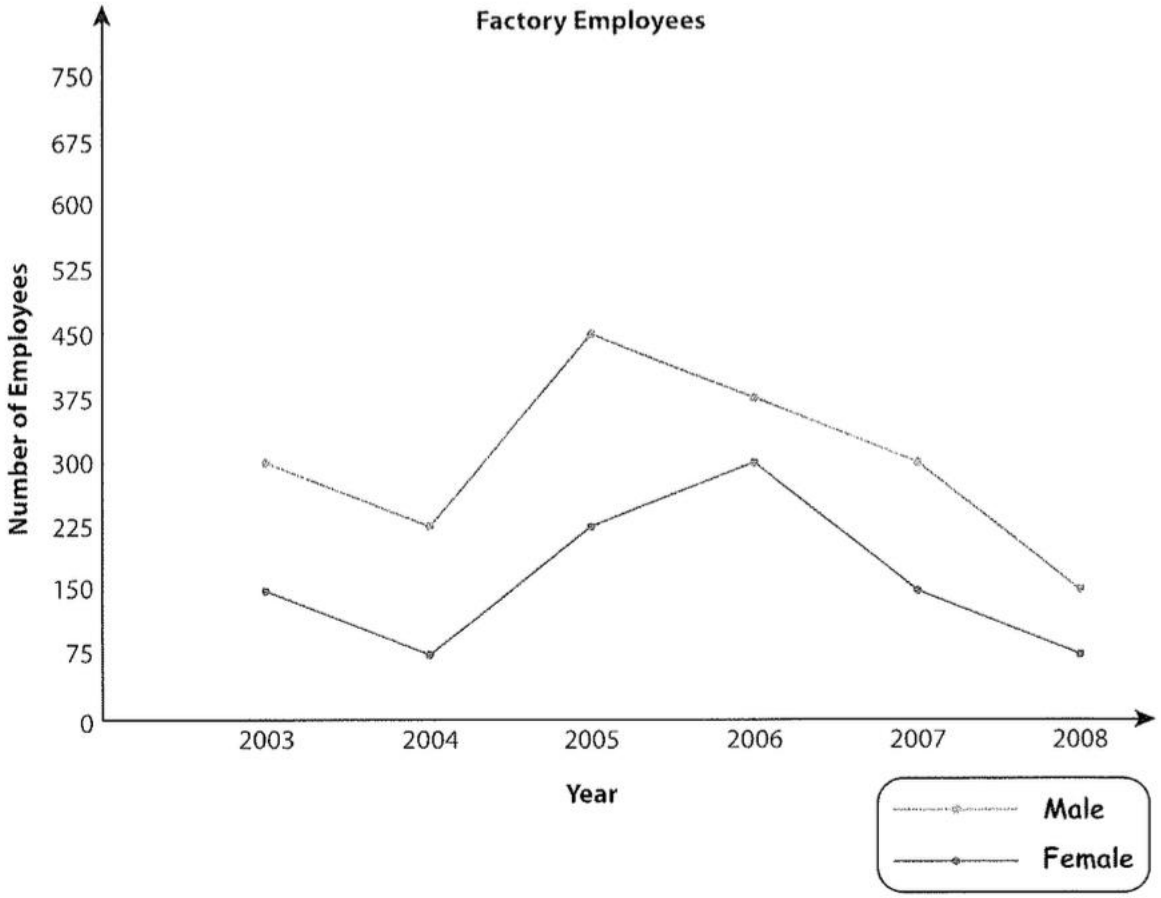


Domain : _____

Range : _____

Double Line Graph - Factory Employees

A production company has both male and female staff working in the assembly unit. The graph shows the number of male and female employees in the company from 2003 to 2008. Read the graph and answer the questions.



1) Which year had the most number of female employees? _____

2) How many employees worked in the year 2003? _____

3) Which year had 225 male and female employees altogether? _____

4) What is the difference on the number of male and female employees during the year 2004? _____

5) Were the number of male employees more compared to the female employees in the year 2005? Yes or No. _____

Finding Slope: The Constant Rate of Change

$$\text{Slope} = \frac{\triangle y}{\triangle x} \quad \text{or} \quad \text{Slope} = \frac{y_2 - y_1}{x_2 - x_1}$$

Both of these equations can be read as the change in y over the change in x.

Show all work.

Find the slope for the following ordered pairs.

1. (-2 , 2), (3 , -3)

2) (-2 , -8), (1, 4)

3) (3, 4), (4, 6)

4) (-5, 4), (-1, 11)

5) (18, - 4), (6, - 4)

6) (-7, -6), (-7, -8)

Use the value tables to find the slope of the line.

7)

x	4	5	6	7	8	9
y	10	6	2	-2	-6	-10

8)

x	y
2	5
4	10
6	15
8	20
10	25
12	30

9)

x	y
9	0
6	3
3	6
0	9
-3	12
-6	15

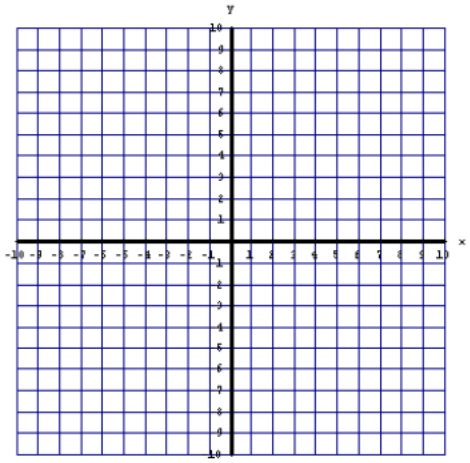
Graphing Linear Equations

Graph the following linear equations on the coordinate plane provided.
If you are not sure how to graph linear equations check: www.khanacademy.org

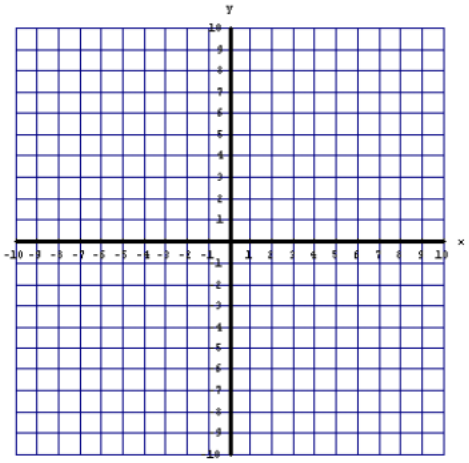
$$y = mx + b$$

Slope — y-intercept

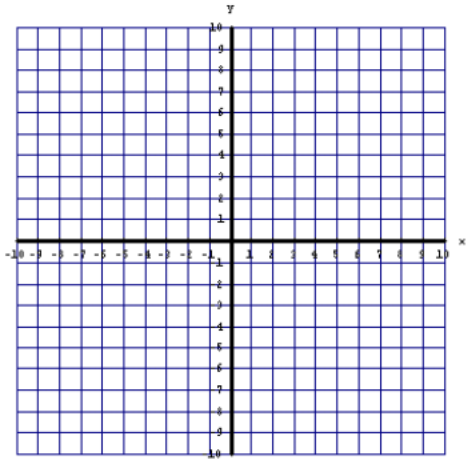
$y = 2x + 3$



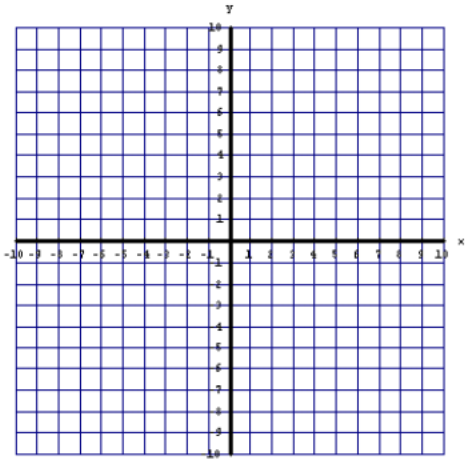
$y = -3x - 1$



$y = 4x - 5$



$y = -x + 6$



Properties of Operations

Commutative Property of Addition:
$a + b = b + a$

Commutative Property of Multiplication:
$a \times b = b \times a$

Associative Property of Addition:
$(a + b) + c = a + (b + c)$

Associative Property of Multiplication:
$(a \times b) \times c = a \times (b \times c)$

Identity Property of Addition:
$a + 0 = a$

Identity Property of Multiplication:
$a \times 1 = a$

Name the property illustrated by each expression.

1. $8 \times 12 = 12 \times 8$
2. $3 \times (2 \times 5) = (3 \times 2) \times 5$
3. $2 + 5 + 12 = 5 + 2 + 12$
4. $xy + 0 = xy$
5. $1x = x$
6. $5 + 7 = 7 + 5$
7. $3 + (4 + 5) = 3 + (5 + 4)$
8. $3xy = 3xy(1)$
9. $(4 + 8) + 5 = 4 + (8 + 5)$
10. $5 \times 6 \times 8 = 8 \times 5 \times 6$

Evaluating Expressions and Formulas

To evaluate an expression, first replace the variable by a given value. Then simplify the resulting numerical expression.

Evaluate the expression when $x = -2$ and $y = 5$.

1. $x + y$
2. $x^2 + y^3$
3. $2x - y$
4. $-2(y - 2x)$
5. $\frac{3x-y}{11}$
6. $\frac{x}{3-y}$

Order of Operations

When several operations are indicated in a numerical expression, proceed in the following order: work within the parentheses, expand each power, multiply and divide (whichever comes first), and finally, add or subtract (whichever comes first).

PEMDAS ("**P**lease **E**xcuse **M**y **D**ear **A**unt **S**ally") is an acronym that provides a good way to remember your order of operation.

P: Parentheses
E: Exponents
MD: Multiply or Divide, whichever comes first
AS: Add or Subtract, whichever comes first

Simplify.

1. $2^4 - 3(3^2 - 8)$

2. $(4^2 + 10)4 - 10(5^2 - 20)$

3. $4^2 - 4(5^2 - 32 \div 8 \cdot 4)$

4. $(8 \cdot 5 \div 10 + 2)(2^5 - 8^2 \div 2)$

5. $5^2 - 3\left[6 + (-2)\left(20 + (-15)\right)\right]$

6. $[4^3 + (-10)(30 - 8 \cdot 5)]$

7. $[15 - 3(4^2 - 10) + 25 \div 5 \cdot 15]$

8. $\{10 - 5[20 - 2(3^2 + 1)]\}$

9. $|-32| + 32$

10. $\frac{48-24\div 2^3}{3+2\cdot 6}$

Central Tendencies

(Mean, Median, Mode, and Range)

Mean is the sum of the values in a set of data divided by the number of values.

Median is the middle value of a set of data written in ascending order. If there are two middle values, the median is the mean of those values.

Mode is the most frequent value in a set of data.

Range is the difference between the greatest and least value in a set of data.

Exercises:

Find the mean, median, mode, and range of each set of data.

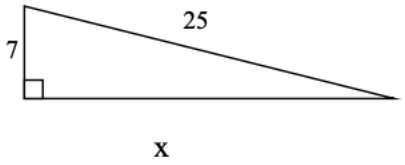
1. 108, 93, 426, 766, 518, 210

2. 21.5, 35.5, 49.5, 16.3, 35.5

Hints/Guide:

The Pythagorean Theorem states that in a right triangle, and only in a right triangle, the length of the longest side (the side opposite the right angle and called the hypotenuse, or c in the formula) squared is equal to the sum of the squares of the other two sides (the sides that meet to form the right angle called legs, or a and b in the formula). The formula is $a^2 + b^2 = c^2$.

Find the missing side.

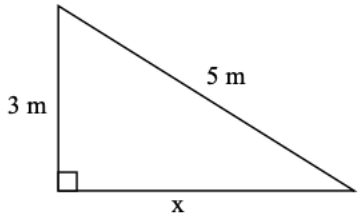


$a^2 + b^2 = c^2$
$7^2 + x^2 = 25^2$
$49 + x^2 = 625$
$-49 \quad -49$
$x^2 = 576$
$\sqrt{x^2} = \sqrt{576}$
$x = 24$

Exercises: Solve for the variable:

SHOW ALL WORK. Use a separate sheet of paper (if necessary) and staple to this page.

1.



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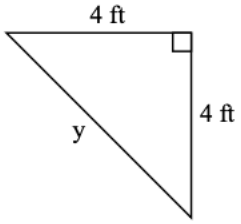

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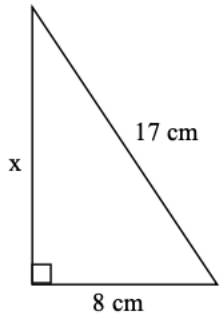

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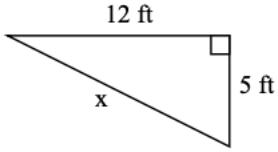

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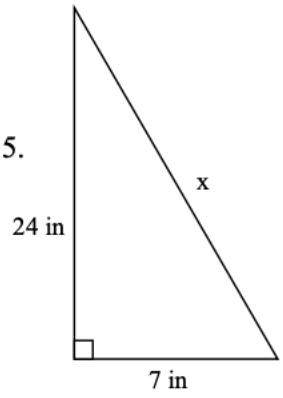

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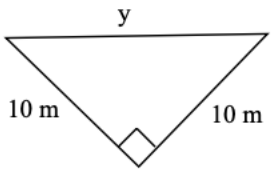

7.