6th Grade Math Practice Packet

An Education.com Collection by
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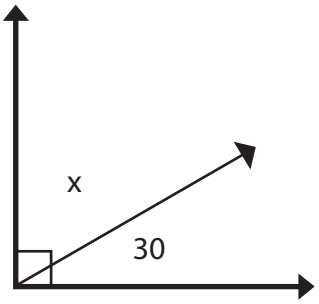
Table of Contents

Name: _____

Complementary Angles

Solve for angle x.

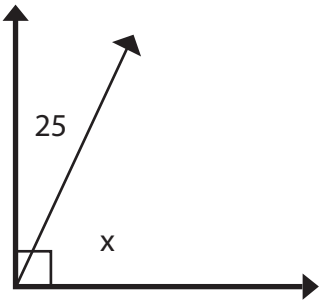
1.



x = 60

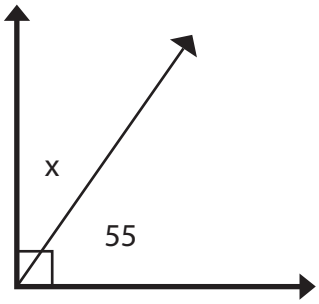
(90 - 30 = 60)

2.



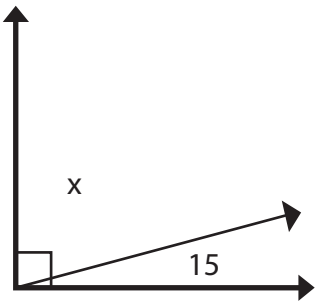
x = _____

3.



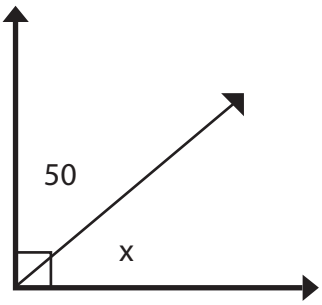
x = _____

4.



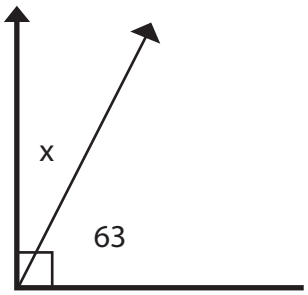
x = _____

5.



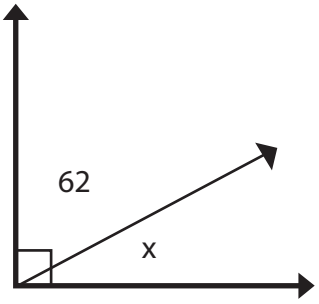
x = _____

6.



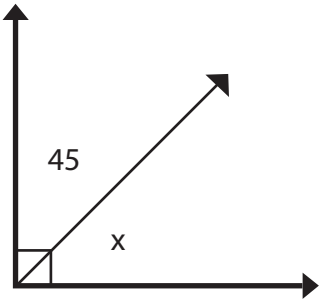
x = _____

7.



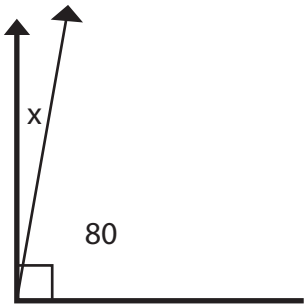
x = _____

8.



x = _____

9.



x = _____

Algebraic Expressions

Simplify the following expressions.

1.) $5a + 6a =$

2.) $3a + a =$

3.) $8a - 3a =$

4.) $10a - 2a =$

5.) $9a + 4a =$

6.) $11a - 7a =$

7.) $4b + 3b =$

8.) $12b - 6b =$

9.) $5b + 9b =$

Complete the following expressions.

1.) $12 \times 3 - 5 + 4 =$

2.) $4 + 7 \times 2 - 8 =$

3.) $5 - 7 + 2 \times 10 =$

4.) $15 \div 3 + 8 \times 5 =$

5.) $11 \times 3 - 12 \div 4 =$

6.) $5 + 9 - 16 \div 2 =$

Combine like terms to simplify the following expressions.

1.) $3a(a + 4) - 2a + 7 =$

2.) $5a + 3a - 15 \div 3 =$

3.) $4(3 + 9) + 10a - 4a =$

4.) $(21 \div 7)(4a + a) - 12 =$

5.) $17 + 4(3 + a) - a =$

6.) $10a - 4a + 27 \div 3 =$

Algebra Practice Problems

Complete the algebraic equations. If the answer is a fraction, reduce and convert it to a mixed number.

1.) $x + 7 - 4(x + 1) = -10$

2.) $5x - 4 + 2(x - 4) = 16$

3.) $20 + 3x - 15 + x = 27$

4.) $11 - 2x + 8x + 5 = 32$

5.) $5(2x - 7) + 42 - 3x = 2$

6.) $2(4x - 2) - 5x = -18$

7.) $30 - 6(x + 3) + 2x = 8$

8.) $23 + 4(x - 3) - x = 11$

9.) $2x - 14 + 3(x + 1) = -4$

10.) $6(2x + 2) + 12 = 50$

Greater Than >, Less Than < or Equal =

Directions:
1. Multiply or divide to find a common denominator.
2. Then compare the numerator.
3. Write >, <, or = in the circle.

$\frac{3}{4} \bigcirc \frac{1}{4}$	$\frac{5}{7} \bigcirc \frac{6}{7}$	$\frac{2}{10} \bigcirc \frac{8}{10}$
$\frac{2}{6} \bigcirc \frac{2}{3}$	$\frac{1}{2} \bigcirc \frac{5}{8}$	$\frac{5}{18} \bigcirc \frac{1}{3}$
$\frac{4}{5} \bigcirc \frac{22}{25}$	$\frac{5}{6} \bigcirc \frac{33}{42}$	$\frac{80}{100} \bigcirc \frac{4}{5}$
$\frac{15}{21} \bigcirc \frac{4}{7}$	$\frac{4}{16} \bigcirc \frac{12}{24}$	$\frac{36}{81} \bigcirc \frac{18}{27}$
$\frac{21}{35} \bigcirc \frac{16}{40}$	$\frac{28}{49} \bigcirc \frac{18}{21}$	$\frac{60}{144} \bigcirc \frac{12}{24}$
$\frac{2}{5} \bigcirc \frac{4}{7}$	$\frac{5}{9} \bigcirc \frac{3}{4}$	$\frac{4}{6} \bigcirc \frac{7}{8}$
$\frac{9}{13} \bigcirc \frac{5}{8}$	$\frac{8}{10} \bigcirc \frac{6}{9}$	$\frac{7}{11} \bigcirc \frac{2}{4}$
$\frac{25}{10} \bigcirc \frac{20}{10}$	$\frac{46}{6} \bigcirc \frac{14}{4}$	$\frac{57}{7} \bigcirc \frac{62}{9}$

Adding Exponents

Adding exponents may seem like a duanting task at first, but once we know a few key terms, you will find that adding exponents is not so bad at all.

-Exponentiations are always written with a base number and an exponent: b^n
-When multiplying two exponentiations with the same base number, we can simply add their exponents to find our answer quickly.

Example: $4^3 \times 4^2 = ?$

This equation is the same as writing, $4^{(3+2)} = 4^5 = 4 \times 4 \times 4 \times 4 \times 4 = 1{,}024$

For each problem below, first add the exponents if the bases are the same in the equation. Write out your result and solve the problem.

1) $2^3 \times 2^2 = ?$

2) $3^1 \times 3^0 = ?$

3) $3^4 \times 3^5 = ?$

4) $4^6 \times 4^0 = ?$

5) $4^4 \times 4^1 = ?$

6) $5^2 \times 5^3 = ?$

7) $5^5 \times 5^0 = ?$

8) $6^2 \times 6^2 = ?$

Fraction Review

For each problem below, add or subtract. Show your work on another piece of paper and write your answers on the lines provided.

1) $\frac{1}{2} - \frac{1}{4} =$ _____

2) $\frac{4}{8} + \frac{1}{4} =$ _____

3) $\frac{1}{3} + \frac{3}{9} =$ _____

4) $\frac{3}{5} - \frac{1}{3} =$ _____

5) $\frac{2}{3} - \frac{1}{2} =$ _____

6) $\frac{7}{10} - \frac{1}{2} =$ _____

7) $\frac{3}{6} + \frac{2}{12} =$ _____

8) $\frac{4}{14} + \frac{1}{7} =$ _____

9) $\frac{1}{3} + \frac{3}{9} =$ _____

10) $\frac{4}{12} - \frac{1}{3} =$ _____

11) $1\frac{10}{21} + 4\frac{5}{7} =$ _____

12) $2\frac{7}{27} + 8\frac{5}{9} =$ _____

13) $7\frac{4}{5} - 3\frac{8}{20} =$ _____

14) $9\frac{8}{20} - 4\frac{2}{5} =$ _____

15) $3\frac{1}{7} + 5\frac{12}{21} =$ _____

For each problem below, add or subtract fractions and then compare results. Write greater than (>), less than (<), or equal to (=).

1) $6\frac{1}{4} - 3\frac{1}{20} \square 6\frac{1}{4} - 3\frac{1}{20}$

2) $6\frac{5}{10} + 8\frac{1}{4} \square 2\frac{4}{14} + 7\frac{1}{7}$

3) $8\frac{3}{4} - 3\frac{5}{7} \square 9\frac{6}{7} - 3\frac{2}{14}$

4) $3\frac{1}{4} + 3\frac{4}{6} \square 2\frac{1}{2} + 3\frac{1}{2}$

5) $9\frac{5}{6} + 5\frac{2}{3} \square 8\frac{7}{9} - 4\frac{1}{3}$

6) $5\frac{1}{4} - 1\frac{1}{8} \square 3\frac{1}{2} + 5\frac{3}{6}$

For each problem below, find the missing factor by computing the inverse operation.

1) $4\frac{1}{2} - \square = 2\frac{7}{8}$

2) $\square + 1\frac{1}{2} = 11$

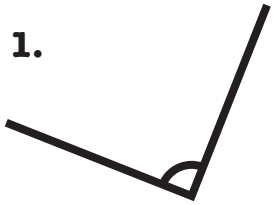
3) $\square + 8\frac{7}{8} = 13\frac{3}{8}$

4) $7\frac{5}{8} - \square = 5\frac{3}{8}$

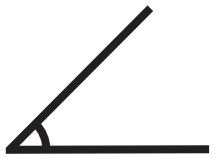
Name: _____

Measuring Angles

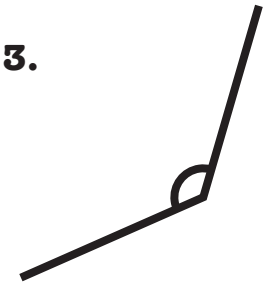
Use your protractor to measure each angle.

1. 

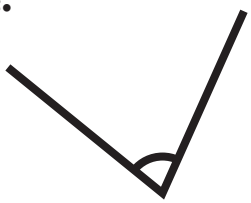
This angle is _____ degrees.

2. 

This angle is _____ degrees.

3. 

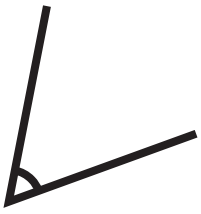
This angle is _____ degrees.

4. 

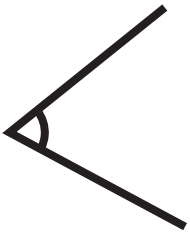
This angle is _____ degrees.

5. 

This angle is _____ degrees.

6. 

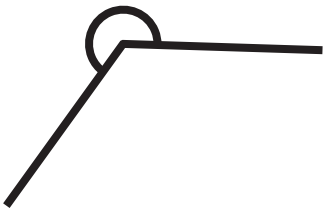
This angle is _____ degrees.

7. 

This angle is _____ degrees.

8. 

This angle is _____ degrees.

9. 

This angle is _____ degrees.

10. 

This angle is _____ degrees.

Algebraic Equations

Write out an algebraic equation for each sentence.

1.) Three more than twice a number is eleven.

2.) Five times a number decreased by three is seven.

3.) Fifteen is ten increased by a number.

Complete the following algebraic equations.

1.) 3X + 10 = 22

2.) 24 – 4X = 4

3.) 5 – 2X + 17 = 18

Complete the following word problems using an algebraic equation.

1.) Tanya wants to make an apple pie and has 5 apples. She needs 12 apples to finish the pie. How many more apples does she need?

2.) Steven wants to buy a game for $34.00. He has saved up $20.00. How much more money does he need to buy the game?

3.) Sarah is selling lemonade. She has sold a total of 14 cups. 4 cups were sold to adults and she sold 2 batches of lemonade to other children. How many cups were in each batch?

Algebra: Greater Than, Less Than or Equal To

Determine the relationship between the algebraic equations.
Place > (greater than), < (less than) or = (equal to) in the space provided.

Where x = 3

1.) 5x + 4 _____ 3x + 15

2.) 2x + x _____ 6x – 5

3.) x + 23 _____ 5x – 4

4.) 6x – 2 _____ 4x + 4

5.) 7x – 2 _____ 4x + 4

6.) 3x + 5 _____ 6x – 4

Where x = 7

1.) 3x – x _____ 4x – 14

2.) 2x + 10 _____ 5x – 5

3.) 2x + 12 _____ 3x – 4

4.) 6x – 18 _____ 4x – 4

5.) x + x + 7 _____ 5x

6.) 8x _____3x + 2x + 15

Number Sequences

Fill in the missing number that completes the sequence.

Ex. 1 , 2 , ___ , 4 : the missing number is 3

1.) 2 , 4 , ___ , 8

2.) 1 , 5 , ___ , 13

3.) 3 , 6 , ___ , 12

4.) 5 , ___ , 15 , 20

5.) 1 , ___ , 9 , 27

6.) 4 , ___ , 16 , 32

7.) 6 , 8 , ___ , 20

8.) 4 , 5 , ___ , 10

9.) 4 , 9 , 16 , ___

10.) 8 , 27 , 64 , 125 , ___

11.) 0 , 1 , 1 , 2 , 3 , 5 , ___

12.) 30 , 28 , 26 , 24 , ___

13.) 16 , 12 , 8 , ___

14.) 27 , 26 , 24 , 21 , ___

15.) 32 , 30 , 26 , 18 , ___

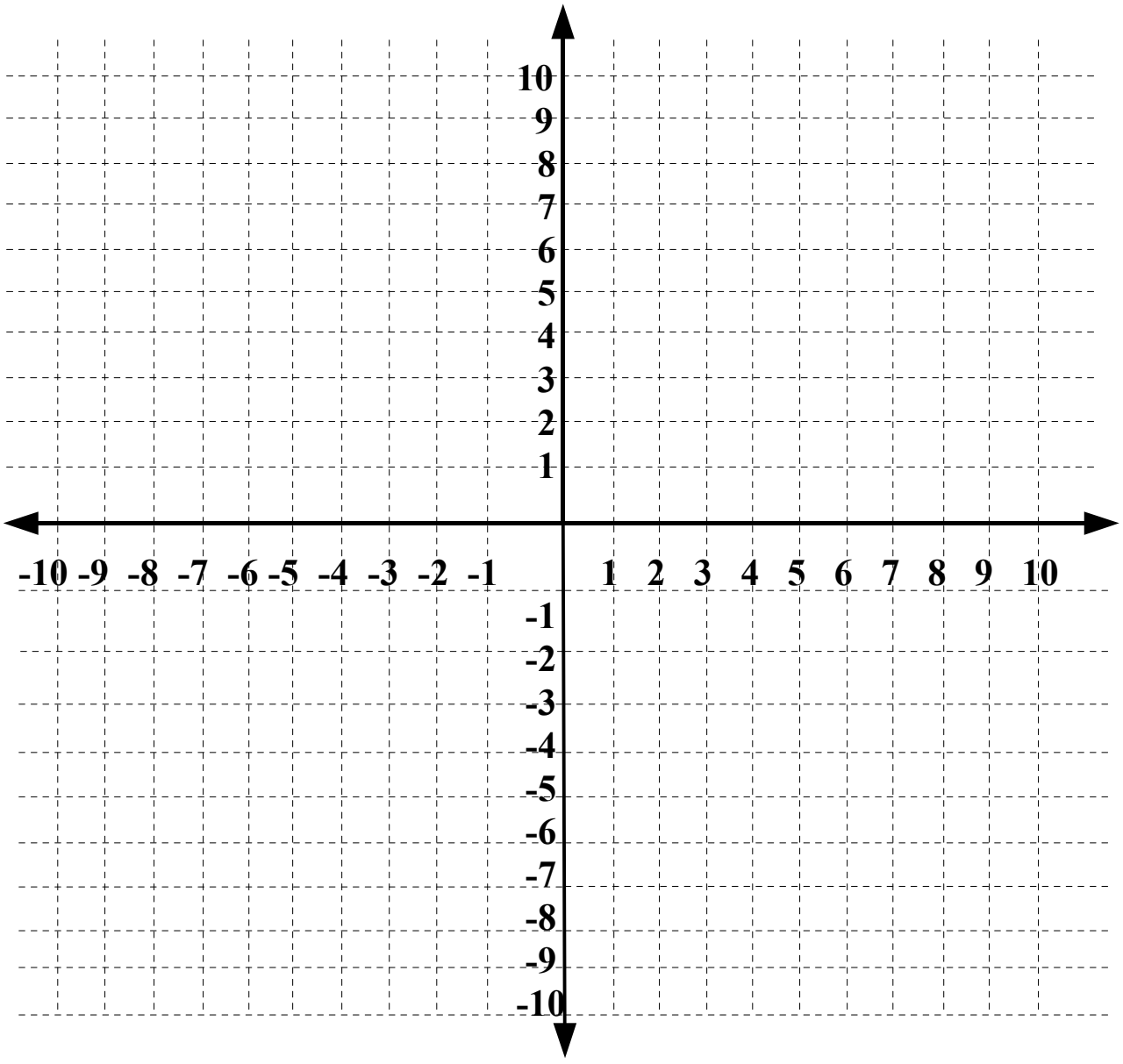
16.) 500 , 100 , 20 , ___

17.) 48 , 24 , 12 , ___

18.) 81 , 27 , 9 , ___

19.) 256 , 64 , 16 , ___

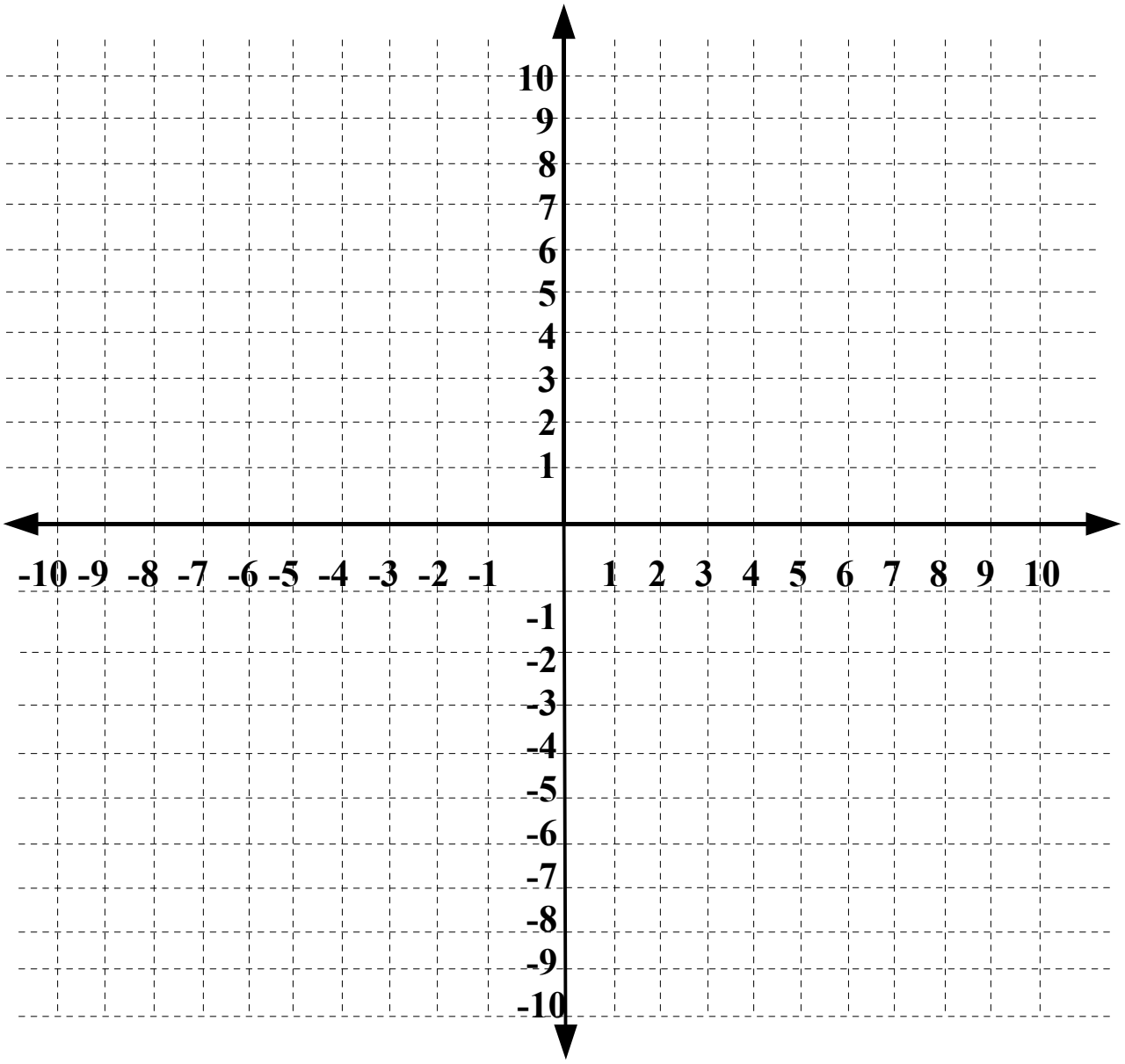
Plotting Ordered Pairs



Plot the ordered pairs below in the graph above to reveal a letter.

1.) (3 , -6)	**2.) (-7 , 0)**	**3.) (-4 , 8)**	**4.) (9 , 0)**	**5.) (4 , 9)**
6.) (-7 , 3)	**7.) (0 , 9)**	**8.) (7 , 7)**	**9.) (-6 , -2)**	**10.) (0 , -6)**
11.) (6 , -5)	**12.) (-5 , 7)**	**13.) (-4 , -5)**	**14.) (9 , -1)**	**15.) (3 , 1)**
16.) (8 , -3)	**17.) (9, 1)**	**18.) (8 , 5)**	**19.) (7 , 1)**	**20.) (-2, -6)**

Ordered Pairs II



Plot the ordered pairs below in the graph above.

1.) (8 , 3)	**2.) (4 , -6)**	**3.) (-3 , 2)**	**4.) (-5 , -7)**	**5.) (7 , 4)**
6.) (7 , -4)	**7.) (-3 , 5)**	**8.) (-8 , -4)**	**9.) (6 , -2)**	**10.) (9 , 9)**
11.) (-2 , -6)	**12.) (10 , 4)**	**13.) (0 , 0)**	**14.) (3 , 2)**	**15.) (-1 , -2)**
16.) (-4 , 2)	**17.) (-6 , -3)**	**18.) (8 , -8)**	**19.) (-10 , -5)**	**20.) (-9 , 4)**

Comparing Decimals

Compare decimals. Write a <, > or =.

1. 5.25 _____ 5.43

2. 7.467 _____ 7.674

3. 0.14 _____ 0.15

4. 1.555876 _____ 1.555876

5. 71.05 _____ 72.00

6. 6.1 _____ 6.13

7. 9.120 _____ 9.12

8. 4.311 _____ 4.311

9. 5.8000001 _____ 5.8000002

10. 3 _____ .03

11. 9.3540 _____ 9.5430

Combining Like Terms

1.) $x + 2x =$

2.) $2x - x =$

3.) $4x + 2x =$

4.) $6x - 3x =$

5.) $5x + x =$

6.) $2x + 2x =$

7.) $7x - 5x =$

8.) $3x - 2x =$

9.) $x + x =$

10.) $x^2 + 2x^2 =$

11.) $4x^2 - 3x^2 =$

12.) $3x^2 + 2x^2 =$

13.) $2x^2 + 2x + x^2 + x =$

14.) $5x + x^2 - 2x + x^2 =$

15.) $3x + 2x - x + 2x^2 =$

16.) $6x + 3x^2 - x - x^2 =$

17.) $4x + 3 + x^2 - x =$

18.) $2x + 3x + 9 + x =$

19.) $2x^2 + 3 + 3x - 1 =$

20.) $2x + 5 + x^2 - x =$

21.) $2x + 4y - x + y =$

22.) $2y + x + 3x - y =$

23.) $x + y + 2y - 4 =$

24.) $5 + 2x + y + 2x - 1 =$

25.) $3y + 2 + 2y + 5 =$

26.) $2x + 2y + x^2 - x + x^2 =$

Introduction to Algebraic Expressions

ORDER OF OPERATIONS

Calculating an equation or expression using the following order:
1. Anything in parentheses
2. Exponents
3. Multiplication and division, from left to right
4. Addition and subtraction, from left to right

Using the order of operations, complete the following algebra problems.

Ex. **1**. $(5 + 9) - 3^2 + 4 \times 6$ **2**. $24 - 2 + (4 \times 2)$ **3**. $8 \times 4 - 9 + 5^2$

$14 - 3^2 + 4 \times 6$
$14 - 9 + 4 \times 6$
$14 - 9 + 24$
$5 + 24 = 29$

4. $5 + (7 + 9) - 1 \times 2^3$ **5**. $6 + 12 \div 3 + (17 - 5)$ **6**. $4^2 + 4 \times 3 - 5$

LIKE TERMS

Monomials that have the same variables with the same exponent.
Combining like terms reduces multiple monomials into one monomial.

Simplify the following algebraic expressions by combining like terms.

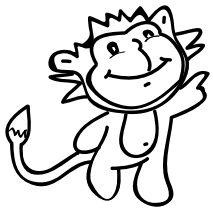
Ex. **1**. $7 + 2x - 1 + 5x + 3x^2$ **2**. $10x + 8 - 2x + x^3 + 5$ **3**. $8 - 3 - 2x + 10x$

$7 - 1 + 2x + 5x + 3x^2$
$6 + 7x + 3x^2$

4. $2x^2 + 3x + x^2 - x + 4$ **5**. $x + x + 2x^3 + 3x$ **6**. $9 + x^3 - 3 + x^3 - 2x$

Adding and Subtracting Mixed Numbers

Adding and subtracting mixed fractions with unlike denominators may seem impossible, but if you follow these three simple steps, you will be a pro!



-First, convert your mixed fraction to an improper fraction.

-Next, find a common denominator and add or subtract the fractions.

-Last, convert the answer back to a mixed fraction.

Quick Reminder: An improper fraction has a numerator that is greater than or equal to the denominator.

Example: $3\frac{1}{4} + 2\frac{1}{2} = ?$

Convert to an improper fraction. $3\frac{1}{4} = \frac{13}{4}$ $2\frac{1}{2} = \frac{5}{2}$

Find a common denominator. $\frac{13}{4}$ $\frac{10}{4}$

Now, add them. $\frac{13}{4} + \frac{10}{4} = \frac{23}{4}$

Convert back to a mixed fraction. $5\frac{3}{4}$

For each problem below, follow the steps used in the example to find your solution. Be sure to show all your work in the space provided.

1) $3\frac{5}{8} + 1\frac{3}{4} = ?$

2) $6\frac{5}{6} - 3\frac{1}{4} = ?$

3) $4\frac{1}{3} + 3\frac{2}{5} = ?$

4) $7\frac{7}{8} - 6\frac{1}{4} = ?$

5) $3\frac{2}{3} + 2\frac{5}{7} = ?$

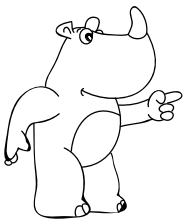
6) $5\frac{4}{5} - 3\frac{1}{3} = ?$

7) $4\frac{1}{4} + 1\frac{1}{3} = ?$

8) $11\frac{5}{6} - 5\frac{1}{2} = ?$

Squares, Cubes, and Roots

Squares, cubes, square roots, and cube roots may seem like difficult math problems at first, but once you learn how to solve them, you will find that they are both easy and fun!



- The **square** of a number is the number times itself.
- The **square root** of a number is a number that can be multiplied by itself to give the original number. It is the inverse operation of squaring a number.
- The **cube** of a number is the number multiplied by itself twice.
- The **cube root** of a number is, a value that when cubed, gives the original number. It is the inverse operation of cubing a number.

Examples

Square: $5^2 = 5 \times 5 = 25$

Square Root: $\sqrt{25} = 5^2 (5x5=25)$

Cube: $5^3 = 5 \times 5 \times 5 = 125$

Cube Root: $\sqrt[3]{125} = 5^3 (5x5x5=125)$

Write the **square** or **cube** of each number.

1) $13^2 =$ _____
2) $4^3 =$ _____
3) $9^2 =$ _____
4) $5^3 =$ _____
5) $2^2 =$ _____
6) $6^3 =$ _____
7) $48^2 =$ _____
8) $3^3 =$ _____
9) $7^2 =$ _____

Write the **square root** of each number.

1) $\sqrt{16} =$ _____
2) $\sqrt{9} =$ _____
3) $\sqrt{25} =$ _____
4) $\sqrt{81} =$ _____
5) $\sqrt{1} =$ _____
6) $\sqrt{4} =$ _____
7) $\sqrt{49} =$ _____
8) $\sqrt{36} =$ _____
9) $\sqrt{100} =$ _____

Write the **cube root** of each number.

1) $\sqrt[3]{64} =$ _____
2) $\sqrt[3]{1} =$ _____
3) $\sqrt[3]{125} =$ _____
4) $\sqrt[3]{216} =$ _____
5) $\sqrt[3]{8} =$ _____
6) $\sqrt[3]{1,728} =$ _____
7) $\sqrt[3]{343} =$ _____
8) $\sqrt[3]{0} =$ _____
9) $\sqrt[3]{729} =$ _____

Playing with Polynomials

Identify the polynomials.

$x^2 + 3$ $\quad \frac{2}{(x+2)}$ $\quad 4x^4$ $\quad 6x + 2y$ $\quad 10x$ $\quad \frac{2}{x}$

Multiple Choice

A polynomial can have
a.) constants
b.) exponents
c.) variables
d.) all of the above

A polynomial does not use
a.) division
b.) addition
c.) multiplication
d.) subtraction

True or False

____ Polynomials can have an infinite number of terms.
____ A monomial is a polynomial that has one term.
____ If you add or multiply polynomials, the result is a polynomial.
____ A polynomial has to have a variable.

Put the following polynomials in standard form.

$3x + 2x^4 + 7$

$10 + 2x + 5x^2$

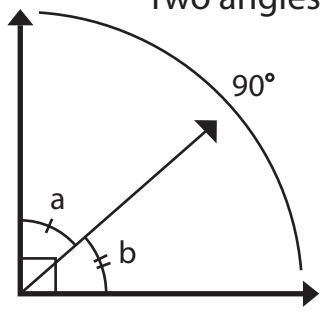
$x^3 + 4x + 2x^2 + 5$

$x + 7 + 3x^2 + 5x^4$

Name: _____

Complementary and Supplementary Angles

Complementary Angles



Two angles are complementary if they add up to 90 degrees (a right angle).

If $\angle a + \angle b = 90°$, then $\angle a$ and $\angle b$ are complementary angles.

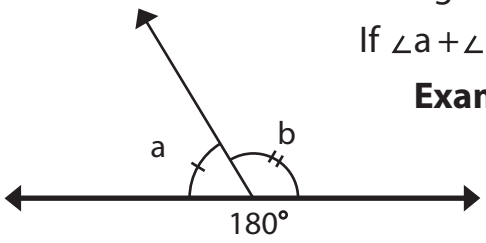
Examples:

- 60° and 30° angles are complementary angles
- 80° and 10° angles are complementary angles
- 20° and 30° angles **are not** complementary angles

Practice Problems: solve for the missing complementary angle, *x*.

$\angle 45 + \angle x = 90°, \angle x =$ _____ $\angle x + \angle 32 = 90°, \angle x =$ _____ $\angle 80 + \angle x = 90°, \angle x =$ _____

Supplementary Angles



Two angles are supplementary if they add up to 180 degrees.

If $\angle a + \angle b = 180°$, then $\angle a$ and $\angle b$ are supplementary angles.

Examples:

- 150° and 30° angles are supplementary angles
- 80° and 100° angles are supplementary angles
- 70° and 90° angles **are not** supplementary angles

Practice Problems: solve for the missing supplementary angle, *x*.

$\angle x + \angle 75 = 180°, \angle x =$ _____ $\angle x + \angle 50 = 180°, \angle x =$ _____ $\angle x + \angle 45 = 180°, \angle x =$ _____

Determine whether $\angle a$ and $\angle b$ are complementary or supplementary.

$\angle a = 50, \angle b = 40$ _____

$\angle a = 35, \angle b = 145$ _____

$\angle a = 20, \angle b = 70$ _____

$\angle a = 65, \angle b = 115$ _____

$\angle a = 80, \angle b = 100$ _____

$\angle a = 75, \angle b = 15$ _____

$\angle a = 60, \angle b = 120$ _____

$\angle a = 65, \angle b = 25$ _____

COOKIE CIRCLES

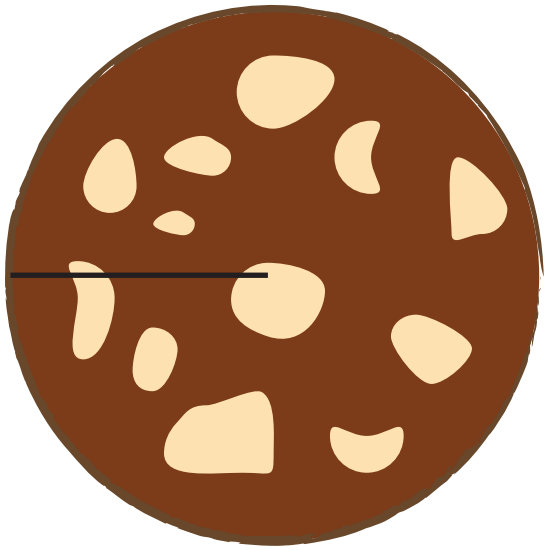
Area, Circumference, Diameters

Fill in the missing information about these cookies!

Formulas:

Diameter = (2)(radius) Circumference=(π)(diameter) Area=πr^2

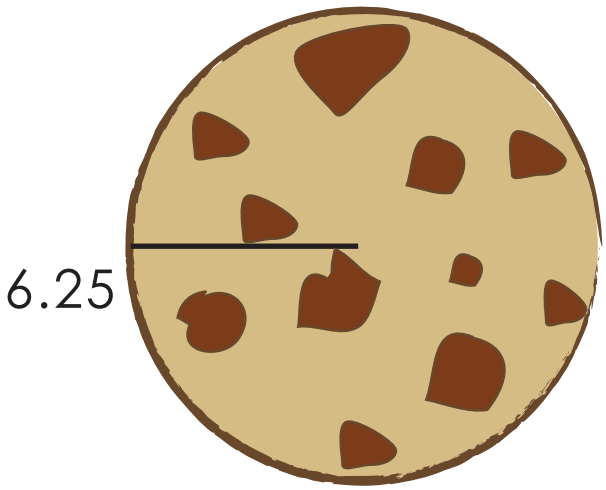
For this assignment please use π=3.14



diameter: _____

circumference: _____

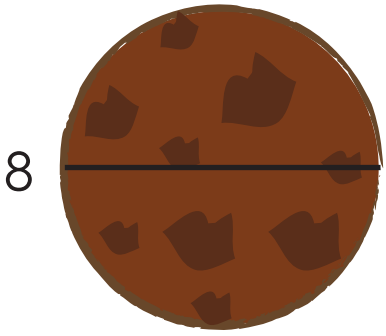
area: _____



diameter: _____

circumference: _____

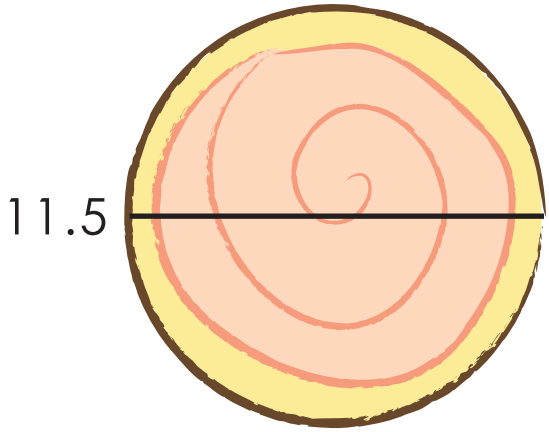
area: _____



radius: _____

circumference: _____

area: _____



radius: _____

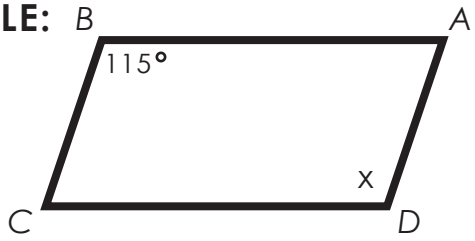
circumference: _____

area: _____

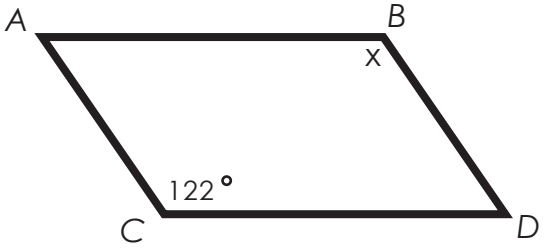
PROPERTIES OF PARALLELOGRAMS

Solve for x using your knowledge of parallelogram.

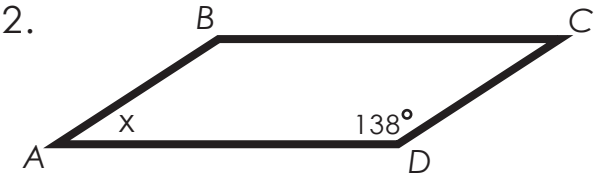
EXAMPLE:



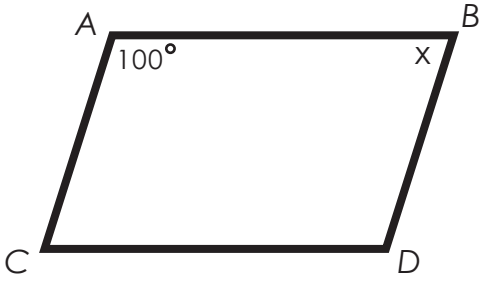
1.



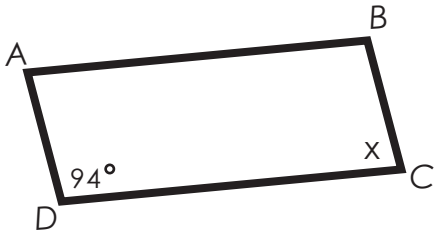
2.



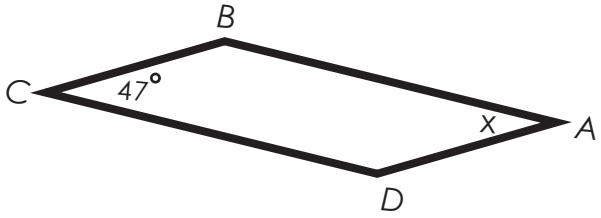
3.



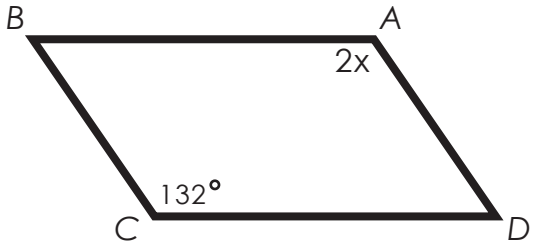
4.



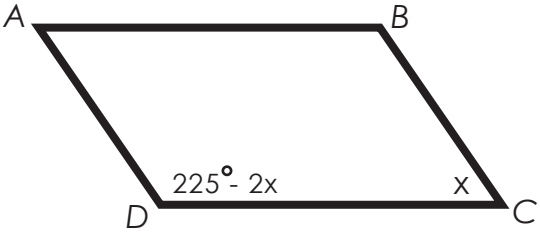
5.



6.



7.



MASTER TRAINING

linear equations

addition / subtraction

solve.

1. -6 = x + 10 **x =** -16

-6 = x + 10
- 10 - 10
-16 = x

2. -5 + x = 7 **x =** _____

3. 15 = x + 3 **x =** _____

4. x - 12 = -2 **x =** _____

5. x - 4 = -8 **x =** _____

6. -9 + x = 8 **x =** _____

7. x + 7 = -18 **x =** _____

8. x - 17 = -1 **x =** _____

9. -6 + x = 7 **x =** _____

10. -16 = x - 6 **x =** _____

TRAINING COMPLETE

MASTER TRAINING

linear equations

addition / subtraction

solve.

1. 15 = x + 19 **x =** -4

15 = x + 19

- 19 - 19

-4 = x

2. x - 16 = -10 **x =** _____

3. -14 = x - 7 **x =** _____

4. x - 10 = -2 **x =** _____

5. x + 25 = -5 **x =** _____

6. x - 8 = -13 **x =** _____

7. 4 + x = 8 **x =** _____

8. 19 + x = -7 **x =** _____

9. x - 12 = -3 **x =** _____

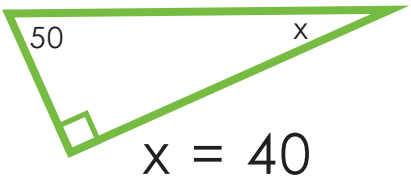
10. -17 = x + 5 **x =** _____

TRAINING COMPLETE

TRIANGLE ANGLES

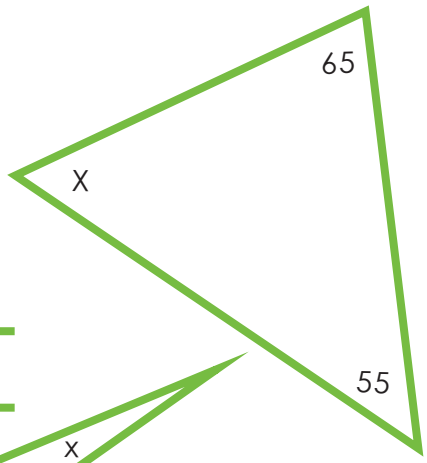
Find the unknown angles in the following triangles. Write down the missing angle and what type of triangle it is!

EXAMPLE:

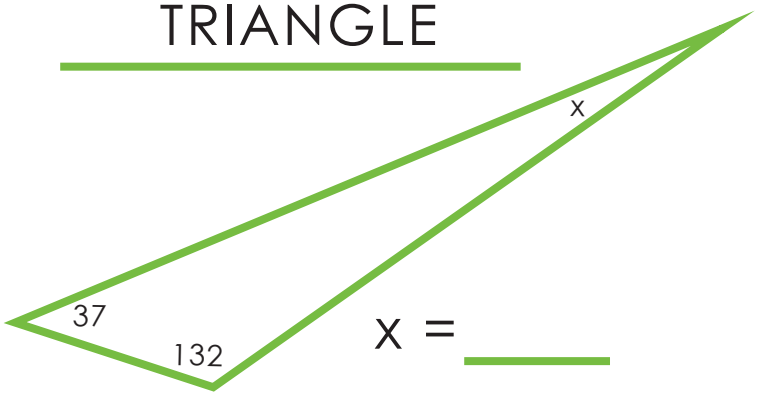


x = 40

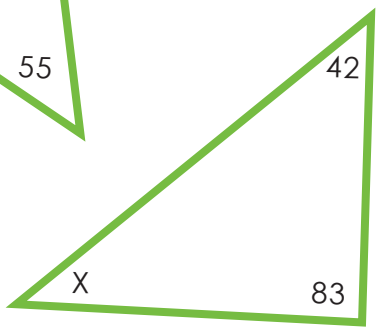
RIGHT ANGLE TRIANGLE



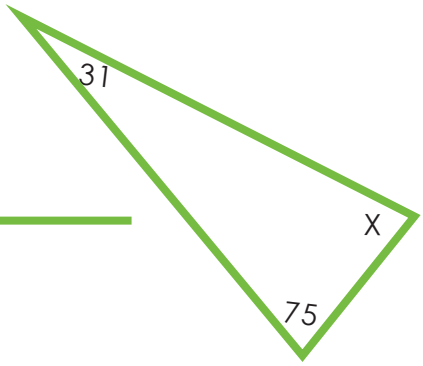
x = _____



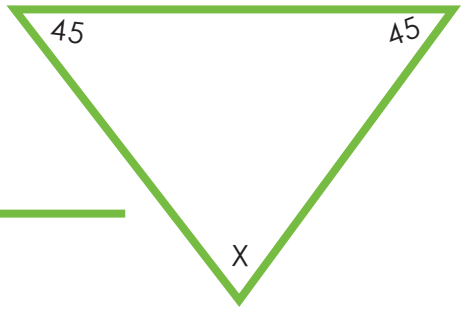
x = _____



x = _____



x = _____



x = _____

monomials
•multiplication•

#1

Example:

$(4x^2y^5)(4x^3y) =$

1. Multiply the coefficents.

   $(4x^2y^5)(4x^3y) = 16$

2. Multiply the variables by adding the exponents.

   $(x^2)(x^3) = x^{2+3} = x^5$

   $(y^5)(y) = y^{5+1} = y^6$

   Answer: $16x^5y^6$

Multiply the monomials.

1. $(3)(4x) =$ _____

2. $(5xy^3)(2x^2y) =$ _____

3. $(xy^8)(7xy^3) =$ _____

4. $(y^3)(y^3) =$ _____

5. $(3x)(4x^4y) =$ _____

6. $(6xy^4)(2x^3y^6) =$ _____

7. $(x^4y^5)(xy) =$ _____

8. $(2xy^5)(8x^3y) =$ _____

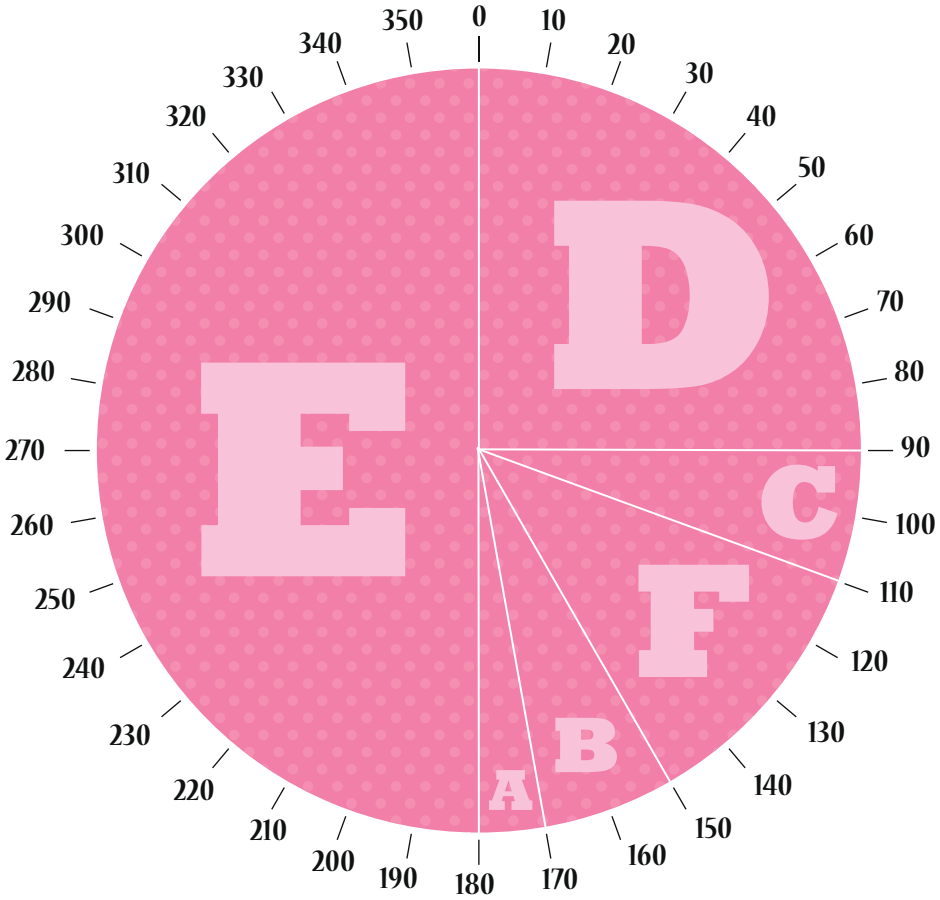
9. $(10xy^5)(2xy) =$ _____

10. $(7x)(2xy) =$ _____

Probability Darts

Find the portion of the dart board that each panel occupies and use your knowledge of degrees and fractions to answer the following questions about probability.

REMEMBER: Probability is the likelihood a given outcome will occur. It is expressed as a fraction.



Fractions

A **1/36**

10°/360°

B _____

C _____

D _____

E _____

F _____

Use the information above to answer the questions below.

1. Is the next dart thrown more likely to hit a vowel or a consonant?

2. What is the probability that the next dart thrown hits panel C or panel B?

3. Which panels have a probability **less than or equal to 1/6** that they will be hit? What is the probability that the next dart thrown hits one of them?

monomials
•multiplication•

#4

Example:

$(4x^2y^5)(4x^2)(4x^3y) =$

1. Multiply the coefficents.
   $(4x^2y^5)(4x^2)(4x^3y) = 64$
2. Multiply the variables by adding the exponents.
   $(x^2)(x^2)(x^3) = x^{2+2+3} = x^7$
   $(y^5)(y) = y^{5+1} = y^6$
   Answer: $64x^7y^6$

Multiply the monomials.

1. $(3x^6)(7x^4y^5)(3y^7) =$ _____

2. $(2xy)(3xy)(6x^8y^4) =$ _____

3. $(5x^6y)(xy)(3xy^2) =$ _____

4. $(8xy)(11xy^6)(11y) =$ _____

5. $(7x^6)(xy)(x^2y) =$ _____

6. $(8x^3y^9)(x^7y)(x^5y^8) =$ _____

7. $(5x^3y^6)(9x^4y)(xy) =$ _____

8. $(6x^2y)(xy^9)(x) =$ _____

9. $(x)(x^8)(10x^7y) =$ _____

10. $(8x^2y)(xy^7)(x^3y) =$ _____

monomials
division

#4

Example:

$$\frac{(4x^3y^5)}{(2x^2y)} =$$

1. Divide the coefficents.

$$\frac{(4x^3y^5)}{(2x^2y)} = \frac{4}{2} = 2$$

2. Divide the variables by subtracting the exponents.

$$\frac{(x^3)}{(x^2)} = x^{3-2} = x \qquad \frac{(y^5)}{(y)} = y^{5-1} = y^4$$

Answer: $2xy^4$

Divide the monomials.

1. $\frac{6x^2y^5}{2xy^2} =$ _____

2. $\frac{3x^4y^2}{1xy} =$ _____

3. $\frac{12x^3y}{3x^2y} =$ _____

4. $\frac{9x^4y^6}{3x^3y^6} =$ _____

5. $\frac{6x^4y^6}{3x^2y^4} =$ _____

6. $\frac{7x^3y^2}{7x^3y} =$ _____

7. $\frac{2x^{11}y^7}{x^8y^3} =$ _____

8. $\frac{15xy^{14}}{5y^3} =$ _____

9. $\frac{18x^2y^3}{3xy^3} =$ _____

10. $\frac{4y^{15}}{2y^{10}} =$ _____

Answer Sheets

6th Grade Math Practice Packet

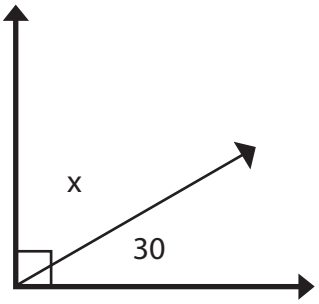
Complementary Angles
Algebraic Expressions
Algebra Practice Problems
Greater Than or Less Than? Comparing Fractions
Adding Exponents
Measuring Angles
Beginning Algebra
Comparing Algebraic Equations
Number Sequences
Graphing Ordered Pairs
Graphing Ordered Pairs #2
Comparing Decimal Numbers
Combining Like Terms
Introduction to Algebraic Expressions
Practice with Polynomials
Complementary and Supplementary Angles
Area and Circumference of a Circle
Properties of Parallelograms
Linear Equations: Add and Subtract
Linear Equations Practice
Triangle Angles
Multiplying Monomials
Probability Darts 4
Multiplying Monomials #4
Dividing Monomials #4

Name: _____

Complementary Angles

Solve for angle x.

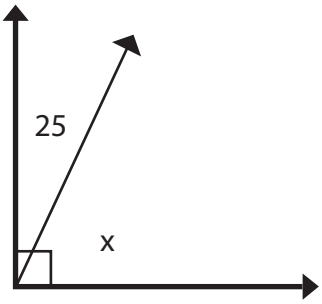
1.



x = 60

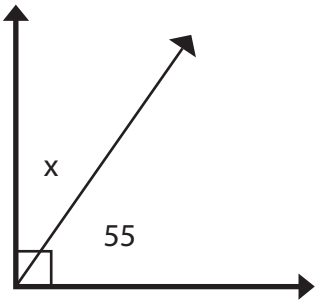
(90 - 30 = 60)

2.



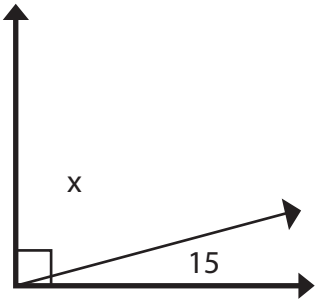
x = 65

3.



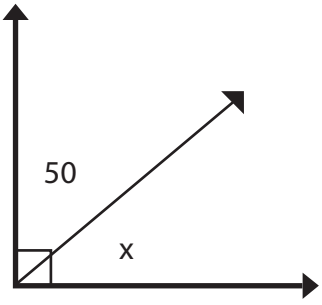
x = 35

4.



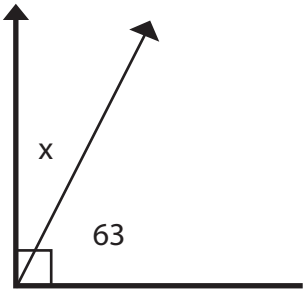
x = 75

5.



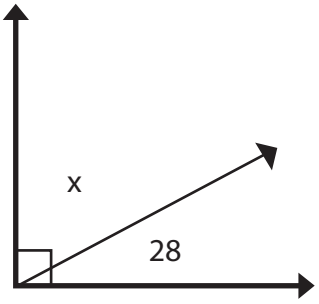
x = 40

6.



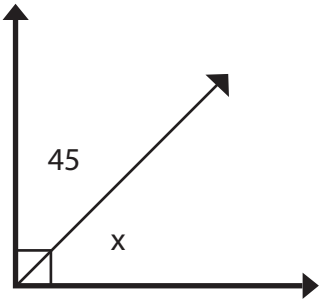
x = 27

7.



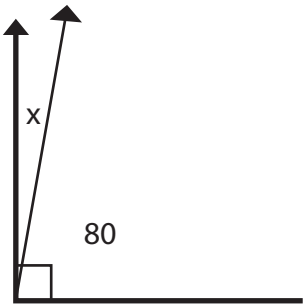
x = 62

8.



x = 45

9.



x = 10

Algebraic Expressions

(answer sheet)

Simplify the following expressions.

1.) $5a + 6a =$ $11a$

2.) $3a + a =$ $4a$

3.) $8a - 3a =$ $5a$

4.) $10a - 2a =$ $8a$

5.) $9a + 4a =$ $13a$

6.) $11a - 7a =$ $4a$

7.) $4b + 3b =$ $7b$

8.) $12b - 6b =$ $6b$

9.) $5b + 9b =$ $14b$

Complete the following expressions.

1.) $12 \times 3 - 5 + 4 =$ 35
$36 - 5 + 4$
$31 + 4$

2.) $4 + 7 \times 2 - 8 =$ 10
$4 + 14 - 8$
$18 - 8$

3.) $5 - 7 + 2 \times 10 =$ 18
$5 - 7 + 20$
$20 - 2$

4.) $15 \div 3 + 8 \times 5 =$ 45
$5 + 8 \times 5$
$5 + 40$

5.) $11 \times 3 - 12 \div 4 =$ 30
$33 - 12 \div 4$
$33 - 3$

6.) $5 + 9 - 16 \div 2 =$ 6
$5 + 9 - 8$
$14 - 8$

Combine like terms to simplify the following expressions.

1.) $3a(a + 4) - 2a + 7 =$ $3a^2 + 10a + 7$
$3a^2 + 12a - 2a + 7$

2.) $5a + 3a - 15 \div 3 =$ $8a - 5$
$5a + 3a - 5$

3.) $4(3 + 9) + 10a - 4a =$ $48 + 6a$
$4(12) + 10a - 4a$
$48 + 10a - 4a$

4.) $(21 \div 7)(4a + a) - 12 =$ $15a - 12$
$3(4a + a) - 12$
$3(5a) - 12$

5.) $17 + 4(3 + a) - a =$ $29 + 3a$
$17 + 12 + 4a - a$
$29 + 4a - a$

6.) $10a - 4a + 27 \div 3 =$ $6a + 9$
$10a - 4a + 9$

Algebra Practice Problems

Complete the algebraic equations. If the answer is a fraction, reduce and convert it to a mixed number.

(answer sheet)

1.) $x + 7 - 4(x + 1) = -10$

$x + 7 - 4x - 4 = -10$

$-3x + 3 = -10$

$-3x = -13$

$x = 4\ 1/3$

2.) $5x - 4 + 2(x - 4) = 16$

$5x - 4 + 2x - 8 = 16$

$7x - 12 = 16$

$7x = 28$

$x = 4$

3.) $20 + 3x - 15 + x = 27$

$5 + 4x = 27$

$4x = 22$

$x = 5\ 1/2$

4.) $11 - 2x + 8x + 5 = 32$

$16 + 6x = 32$

$6x = 16$

$x = 2\ 2/3$

5.) $5(2x - 7) + 42 - 3x = 2$

$10x - 35 + 42 - 3x = 2$

$7x + 7 = 2$

$7x = -5$

$x = -5/7$

6.) $2(4x - 2) - 5x = -18$

$8x - 4 - 5x = -18$

$3x - 4 = -18$

$3x = -14$

$x = -4\ 2/3$

7.) $30 - 6(x + 3) + 2x = 8$

$30 - 6x - 18 + 2x = 8$

$12 - 4x = 8$

$-4x = -4$

$x = 1$

8.) $23 + 4(x - 3) - x = 11$

$23 + 4x - 12 - x = 11$

$11 + 3x = 11$

$3x = 0$

$x = 0$

9.) $2x - 14 + 3(x + 1) = -4$

$2x - 14 + 3x + 3 = -4$

$5x - 11 = -4$

$5x = 7$

$x = 1\ 2/5$

10.) $6(2x + 2) + 12 = 50$

$12x + 12 + 12 = 50$

$12x + 24 = 50$

$12x = 26$

$x = 2\ 1/6$

Greater Than >, Less Than < or Equal =

Directions: 1. Multiply or divide to find a common denominator.
2. Then compare the numerator.
3. Write >, <, or = in the circle.

$\frac{3}{4} > \frac{1}{4}$ $\quad \frac{5}{7} < \frac{6}{7}$ $\quad \frac{2}{10} < \frac{8}{10}$

$\frac{2}{6} < \frac{2}{3}\ \frac{4}{6}$ $\quad \frac{4}{8}\ \frac{1}{2} < \frac{5}{8}$ $\quad \frac{5}{18} < \frac{1}{3}\ \frac{6}{18}$

$\frac{20}{25}\ \frac{4}{5} < \frac{22}{25}$ $\quad \frac{35}{42}\ \frac{5}{6} > \frac{33}{42}$ $\quad \frac{80}{100} = \frac{4}{5}\ \frac{80}{100}$

$\frac{15}{21} > \frac{4}{7}\ \frac{12}{21}$ $\quad \frac{1}{4}\ \frac{4}{16} < \frac{12}{24}\ \frac{2}{4}$ $\quad \frac{4}{9}\ \frac{36}{81} < \frac{18}{27}\ \frac{6}{9}$

$\frac{3}{5}\ \frac{21}{35} > \frac{16}{40}\ \frac{2}{5}$ $\quad \frac{4}{7}\ \frac{28}{49} < \frac{18}{21}\ \frac{6}{7}$ $\quad \frac{5}{12}\ \frac{60}{144} < \frac{12}{24}\ \frac{6}{12}$

$\frac{14}{35}\ \frac{2}{5} < \frac{4}{7}\ \frac{20}{35}$ $\quad \frac{20}{36}\ \frac{5}{9} < \frac{3}{4}\ \frac{27}{36}$ $\quad \frac{16}{24}\ \frac{4}{6} < \frac{7}{8}\ \frac{21}{24}$

$\frac{72}{104}\ \frac{9}{13} > \frac{5}{8}\ \frac{65}{104}$ $\quad \frac{72}{90}\ \frac{8}{10} > \frac{6}{9}\ \frac{60}{90}$ $\quad \frac{28}{44}\ \frac{7}{11} > \frac{2}{4}\ \frac{22}{44}$

$\frac{25}{10} > \frac{20}{10}$ $\quad 7\frac{4}{6}\ \frac{46}{6} > \frac{14}{4}\ 3\frac{2}{4}$ $\quad 8\frac{1}{7}\ \frac{57}{7} > \frac{62}{9}\ 6\frac{8}{9}$

Adding Exponents

Adding exponents may seem like a duanting task at first, but once we know a few key terms, you will find that adding exponents is not so bad at all.

-Exponentiations are always written with a base number and an exponent: b^n
-When multiplying two exponentiations with the same base number, we can simply add their exponents to find our answer quickly.

Example: $4^3 \times 4^2 = ?$

This equation is the same as writing, $4^{(3+2)} = 4^5 = 4 \times 4 \times 4 \times 4 \times 4 = 1{,}024$

For each problem below, first add the exponents if the bases are the same in the equation. Write out your result and solve the problem.

1) $2^3 \times 2^2 = ?$

$2^{(3+2)}$
2^5
$2x2x2x2x2=32$

2) $3^1 \times 3^0 = ?$

$3^{(1+0)}$
3^1
3

3) $3^4 \times 3^5 = ?$

$3^{(4+5)}$
3^9
$3x3x3x3x3x3x3x3x3=19{,}683$

4) $4^6 \times 4^0 = ?$

$4^{(6+0)}$
4^6
$4x4x4x4x4x4=4{,}096$

5) $4^4 \times 4^1 = ?$

$4^{(4+1)}$
4^5
$4x4x4x4x4=1{,}024$

6) $5^2 \times 5^3 = ?$

$5^{(2+3)}$
5^5
$5x5x5x5x5=3{,}125$

7) $5^5 \times 5^0 = ?$

$5^{(5+0)}$
5^5
$5x5x5x5x5=3{,}125$

8) $6^2 \times 6^2 = ?$

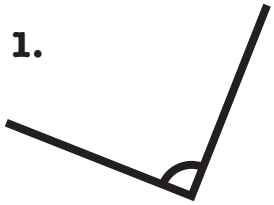
$6^{(2+2)}$
6^4
$6x6x6x6=1{,}296$

Name: _____

Measuring Angles

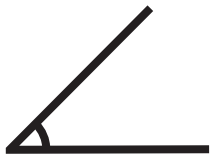
Use your protractor to measure each angle.

1.



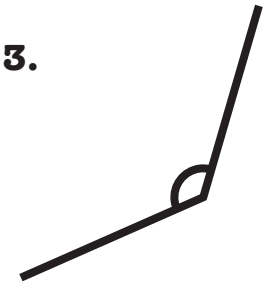
This angle is **90** degrees.

2.



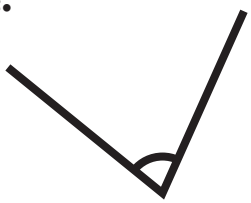
This angle is **45** degrees.

3.



This angle is **130** degrees.

4.

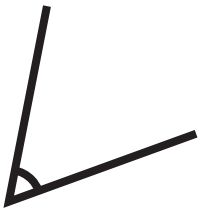


This angle is **75** degrees.

5.

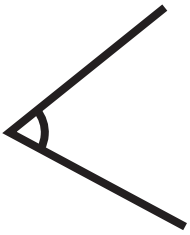
This angle is **20** degrees.

6.



This angle is **59** degrees.

7.

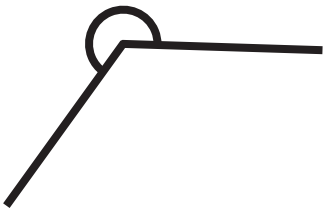


This angle is **67** degrees.

8.

This angle is **210** degrees.

9.



This angle is **236** degrees.

10.

This angle is **30** degrees.

Algebraic Equations

(answer sheet)

Write out an algebraic equation for each sentence.

1.) Three more than twice a number is eleven. $3 + 2X = 11$

2.) Five times a number decreased by three is seven. $5X - 3 = 7$

3.) Fifteen is ten increased by a number. $15 = 10 + X$

Complete the following algebraic equations.

1.) $3X + 10 = 22$ $X = 4$

2.) $24 - 4X = 4$ $X = 5$

3.) $5 - 2X + 17 = 18$ $X = 2$

Complete the following word problems using an algebraic equation.

1.) Tanya wants to make an apple pie and has 5 apples. She needs 12 apples to finish the pie. How many more apples does she need?

$5 + X = 12$ $X = 7$

2.) Steven wants to buy a game for $34.00. He has saved up $20.00. How much more money does he need to buy the game?

$34 = 20 + X$ $X = 14$

3.) Sarah is selling lemonade. She has sold a total of 14 cups. 4 cups were sold to adults and she sold 2 batches of lemonade to other children. How many cups were in each batch?

$14 = 4 + 2X$ $X = 5$

Algebra: Greater Than, Less Than or Equal To

(answer sheet)

Determine the relationship between the algebraic equations.

Place > (greater than), < (less than) or = (equal to) in the space provided.

Where x = 3

1.) 5x + 4 _<_ 3x + 15

2x _____ 11

6 _____ 11

2.) 2x + x _<_ 6x – 5

5 _____ 3x

5 _____ 9

3.) x + 23 _>_ 5x – 4

27 _____ 4x

27 _____ 12

4.) 6x – 2 _=_ 4x + 4

2x _____ 6

6 _____ 6

5.) 7x – 2 _>_ 4x + 4

3x _____ 6

9 _____ 6

6.) 3x + 5 _=_ 6x – 4

9 _____ 3x

9 _____ 9

Where x = 7

1.) 3x – x _=_ 4x – 14

14 _____ 2x

14 _____ 14

2.) 2x + 10 _<_ 5x – 5

15 _____ 3x

15 _____ 21

3.) 2x + 12 _>_ 3x – 4

16 _____ x

16 _____ 7

4.) 6x – 18 _=_ 4x – 4

2x _____ 14

14 _____ 14

5.) x + x + 7 _<_ 5x

7 _____ 3x

7 _____ 21

6.) 8x _>_3x + 2x + 15

3x _____ 15

21 _____ 15

Number Sequences

(answer sheet)

Fill in the missing number that completes the sequence.

Ex. 1 , 2 , ___ , 4 : the missing number is 3

1.) 2 , 4 , _6_ , 8

2.) 1 , 5 , _9_ , 13

3.) 3 , 6 , _9_ , 12

4.) 5 , _10_ , 15 , 20

5.) 1 , _3_ , 9 , 27

6.) 4 , _8_ , 16 , 32

7.) 6 , 8 , _12_ , 20

8.) 4 , 5 , _7_ , 10

9.) 4 , 9 , 16 , _25_

10.) 8 , 27 , 64 , 125 , _216_

11.) 0 , 1 , 1 , 2 , 3 , 5 , _8_

12.) 30 , 28 , 26 , 24 , _22_

13.) 16 , 12 , 8 , _4_

14.) 27 , 26 , 24 , 21 , _17_

15.) 32 , 30 , 26 , 18 , _2_

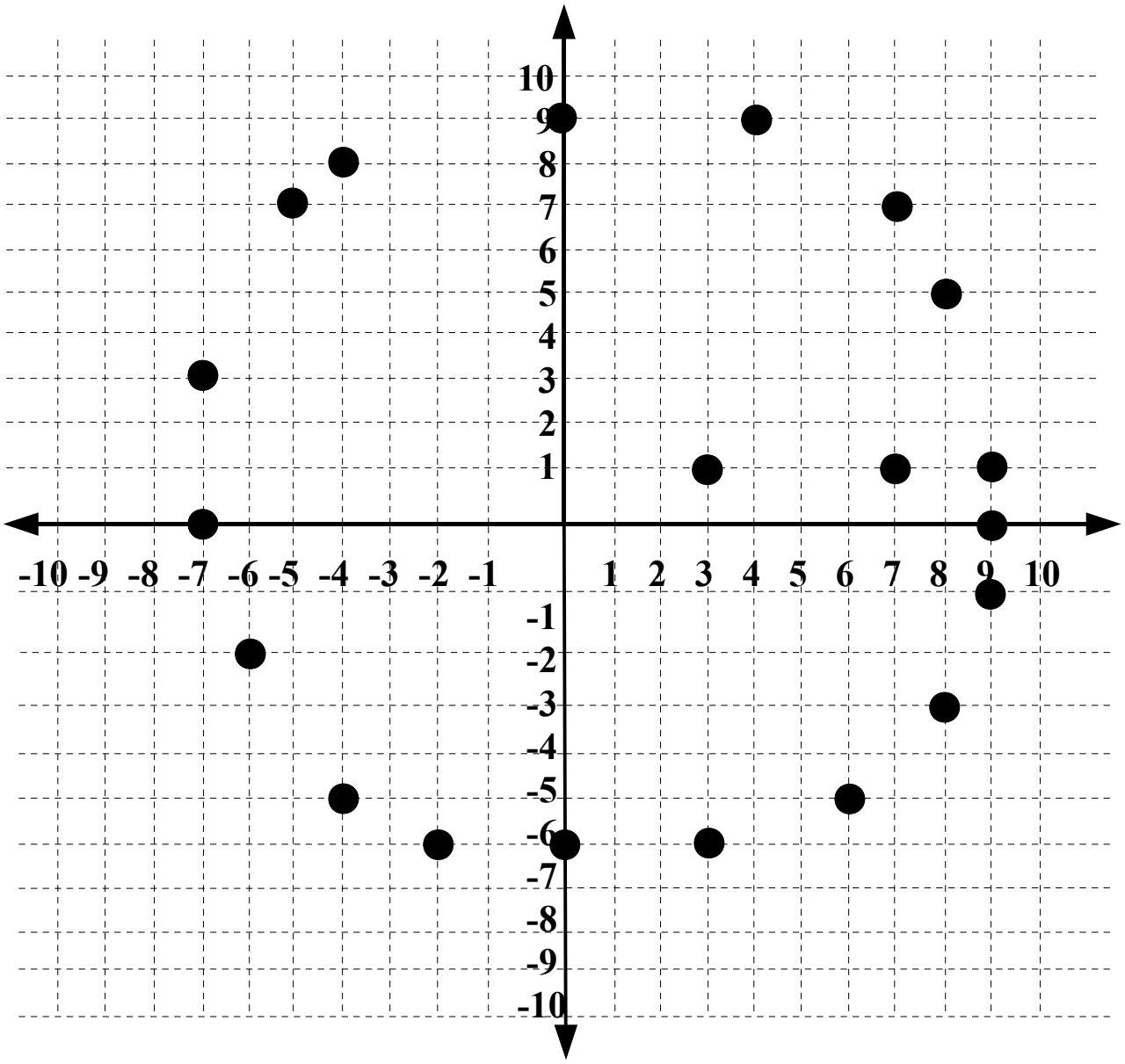
16.) 500 , 100 , 20 , _4_

17.) 48 , 24 , 12 , _6_

18.) 81 , 27 , 9 , _3_

19.) 256 , 64 , 16 , _4_

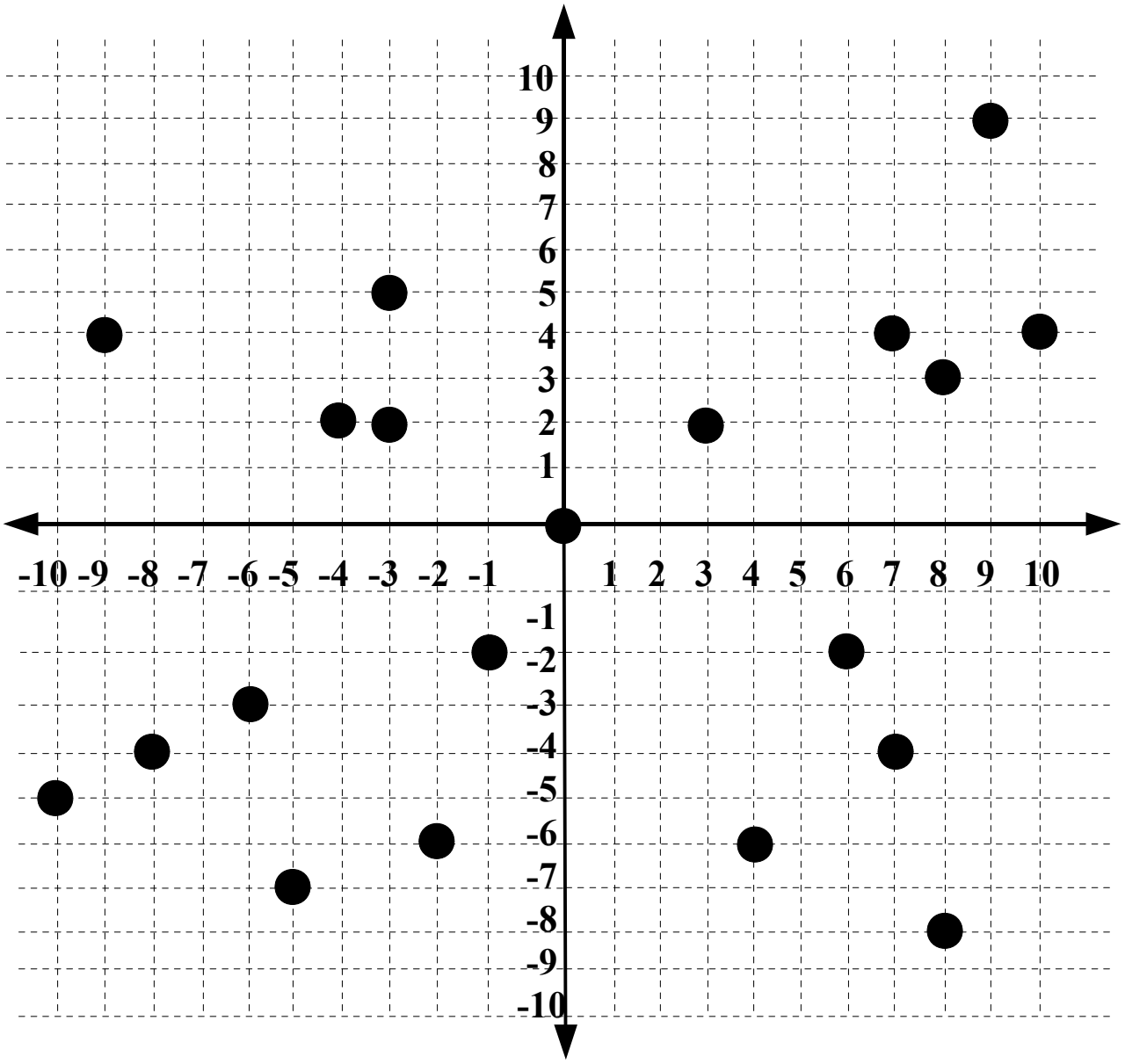
Plotting Ordered Pairs (answer sheet)



Plot the ordered pairs below in the graph above to reveal a letter.

1.) (3 , -6)	**2.) (-7 , 0)**	**3.) (-4 , 8)**	**4.) (9 , 0)**	**5.) (4 , 9)**
6.) (-7 , 3)	**7.) (0 , 9)**	**8.) (7 , 7)**	**9.) (-6 , -2)**	**10.) (0 , -6)**
11.) (6 , -5)	**12.) (-5 , 7)**	**13.) (-4 , -5)**	**14.) (9 , -1)**	**15.) (3 , 1)**
16.) (8 , -3)	**17.) (9, 1)**	**18.) (8 , 5)**	**19.) (7 , 1)**	**20.) (-2, -6)**

Ordered Pairs II (answer sheet)



Plot the ordered pairs below in the graph above.

1.) (8 , 3)	**2.) (4 , -6)**	**3.) (-3 , 2)**	**4.) (-5 , -7)**	**5.) (7 , 4)**
6.) (7 , -4)	**7.) (-3 , 5)**	**8.) (-8 , -4)**	**9.) (6 , -2)**	**10.) (9 , 9)**
11.) (-2 , -6)	**12.) (10 , 4)**	**13.) (0 , 0)**	**14.) (3 , 2)**	**15.) (-1 , -2)**
16.) (-4 , 2)	**17.) (-6 , -3)**	**18.) (8 , -8)**	**19.) (-10 , -5)**	**20.) (-9 , 4)**

Comparing Decimals

Compare decimals. Write <, > or =.

1. 5.25 ___<___ 5.43
2. 7.467 ___<___ 7.674
3. 0.14 ___<___ 0.15
4. 1.555876 ___=___ 1.555876
5. 71.05 ___<___ 72.00
6. 6.1 ___<___ 6.13
7. 9.120 ___=___ 9.12
8. 4.311 ___=___ 4.311
9. 5.8000001 ___<___ 5.8000002
10. 3 ___>___ .03
11. 9.3540 ___<___ 9.5430

Combining Like Terms

(answer sheet)

1.) $x + 2x = 3x$

2.) $2x - x = x$

3.) $4x + 2x = 6x$

4.) $6x - 3x = 3x$

5.) $5x + x = 6x$

6.) $2x + 2x = 4x$

7.) $7x - 5x = 2x$

8.) $3x - 2x = x$

9.) $x + x = 2x$

10.) $x^2 + 2x^2 = 3x^2$

11.) $4x^2 - 3x^2 = x^2$

12.) $3x^2 + 2x^2 = 5x^2$

13.) $2x^2 + 2x + x^2 + x =$
$3x^2 + 3x$

14.) $5x + x^2 - 2x + x^2 =$
$3x + 2x^2$

15.) $3x + 2x - x + 2x^2 =$
$4x + 2x^2$

16.) $6x + 3x^2 - x - x^2 =$
$5x + 2x^2$

17.) $4x + 3 + x^2 - x =$
$3x + 3 + x^2$

18.) $2x + 3x + 9 + x =$
$6x + 9$

19.) $2x^2 + 3 + 3x - 1 =$
$2x^2 + 2 + 3x$

20.) $2x + 5 + x^2 - x =$
$x + 5 + x^2$

21.) $2x + 4y - x + y =$
$x + 5y$

22.) $2y + x + 3x - y =$
$y + 4x$

23.) $x + y + 2y - 4 =$
$x + 3y - 4$

24.) $5 + 2x + y + 2x - 1 =$
$4 + 4x + y$

25.) $3y + 2 + 2y + 5 =$
$5y + 7$

26.) $2x + 2y + x^2 - x + x^2 =$
$x + 2y + 2x^2$

Introduction to Algebraic Expressions

ANSWERS

ORDER OF OPERATIONS

Calculating an equation or expression using the following order:
1. Anything in parentheses
2. Exponents
3. Multiplication and division, from left to right
4. Addition and subtraction, from left to right

Using the order of operations, complete the following algebra problems.

Ex. **1.** $(5 + 9) - 3^2 + 4 \times 6$

$14 - 3^2 + 4 \times 6$

$14 - 9 + 4 \times 6$

$14 - 9 + 24$

$5 + 24 = 29$

2. $24 - 2 + (4 \times 2)$

$24 - 2 + 8$

$22 + 8 = 30$

3. $8 \times 4 - 9 + 5^2$

$8 \times 4 - 9 + 25$

$32 - 9 + 25$

$23 + 25 = 48$

4. $5 + (7 + 9) - 1 \times 2^3$

$5 + 16 - 1 \times 2^3$

$5 + 16 - 1 \times 8$

$5 + 16 - 8$

$21 - 8 = 13$

5. $6 + 12 \div 3 + (17 - 5)$

$6 + 12 \div 3 + 12$

$6 + 4 + 12$

$10 + 12 = 22$

6. $4^2 + 4 \times 3 - 5$

$16 + 4 \times 3 - 5$

$16 + 12 - 5$

$28 - 5 = 23$

LIKE TERMS

Monomials that have the same variables with the same exponent.
Combining like terms reduces multiple monomials into one monomial.

Simplify the following algebraic expressions by combining like terms.

Ex. **1.** $7 + 2x - 1 + 5x + 3x^2$

$7 - 1 + 2x + 5x + 3x^2$

$6 + 7x + 3x^2$

2. $10x + 8 - 2x + x^3 + 5$

$10x - 2x + 8 + 5 + x^3$

$8x + 13 + x^3$

3. $8 - 3 - 2x + 10x$

$5 + 10x - 2x$

$5 + 8x$

4. $2x^2 + 3x + x^2 - x + 4$

$2x^2 + x^2 + 3x - x + 4$

$3x^2 + 2x + 4$

5. $x + x + 2x^3 + 3x$

$x + x + 3x + 2x^3$

$5x + 2x^3$

6. $9 + x^3 - 3 + x^3 - 2x$

$9 - 3 + x^3 + x^3 - 2x$

$6 + 2x^3 - 2x$

Playing with Polynomials
(answer sheet)

Identify the polynomials.

$x^2 + 3$ $\quad \frac{2}{(x+2)}$ $\quad 4x^4$ $\quad 6x + 2y$ $\quad 10x$ $\quad \frac{2}{x}$

Multiple Choice

A polynomial can have
a.) constants
b.) exponents
c.) variables
d.) all of the above

A polynomial does not use
a.) division
b.) addition
c.) multiplication
d.) subtraction

True or False

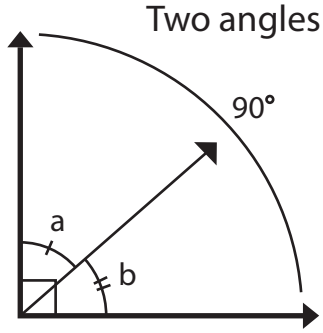
_F__ Polynomials can have an infinite number of terms.
_T__ A monomial is a polynomial that has one term.
_T__ If you add or multiply polynomials, the result is a polynomial.
_F__ A polynomial has to have a variable.

Put the following polynomials in standard form.	(answer)
$3x + 2x^4 + 7$	$2x^4 + 3x + 7$
$10 + 2x + 5x^2$	$5x^2 + 2x + 10$
$x^3 + 4x + 2x^2 + 5$	$x^3 + 2x^2 + 4x + 5$
$x + 7 + 3x^2 + 5x^4$	$5x^4 + 3x^2 + x + 7$

Name: _____

Complementary and Supplementary Angles

Complementary Angles



Two angles are complementary if they add up to 90 degrees (a right angle).

If $\angle a + \angle b = 90°$, then $\angle a$ and $\angle b$ are complementary angles.

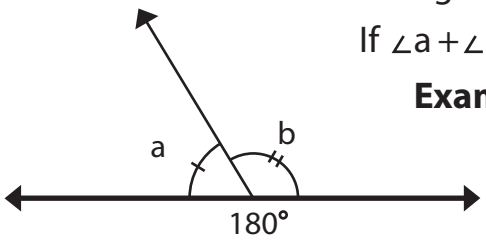
Examples:

- 60° and 30° angles are complementary angles
- 80° and 10° angles are complementary angles
- 20° and 30° angles **are not** complementary angles

Practice Problems: solve for the missing complementary angle, *x*.

$\angle 45 + \angle x = 90°, \angle x =$ **45** $\angle x + \angle 32 = 90°, \angle x =$ **58** $\angle 80 + \angle x = 90°, \angle x =$ **10**

Supplementary Angles



Two angles are supplementary if they add up to 180 degrees.

If $\angle a + \angle b = 180°$, then $\angle a$ and $\angle b$ are supplementary angles.

Examples:

- 150° and 30° angles are supplementary angles
- 80° and 100° angles are supplementary angles
- 70° and 90° angles **are not** supplementary angles

Practice Problems: solve for the missing supplementary angle, *x*.

$\angle x + \angle 75 = 180°, \angle x =$ **105** $\angle x + \angle 50 = 180°, \angle x =$ **130** $\angle x + \angle 45 = 180°, \angle x =$ **135**

Determine whether $\angle a$ and $\angle b$ are complementary or supplementary.

$\angle a = 50, \angle b = 40$ **complementary**

$\angle a = 35, \angle b = 145$ **supplementary**

$\angle a = 20, \angle b = 70$ **complementary**

$\angle a = 65, \angle b = 115$ **supplementary**

$\angle a = 80, \angle b = 100$ **supplementary**

$\angle a = 75, \angle b = 15$ **complementary**

$\angle a = 60, \angle b = 120$ **supplementary**

$\angle a = 65, \angle b = 25$ **complementary**

COOKIE CIRCLES

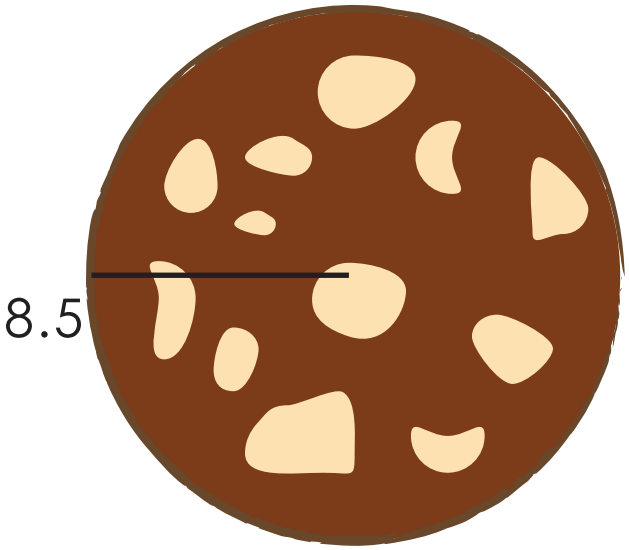
Area, Circumference, Diameters

Fill in the missing information about these cookies!

Formulas:

Diameter = 2(radius) Circumference = π(diameter) Area=πr^2

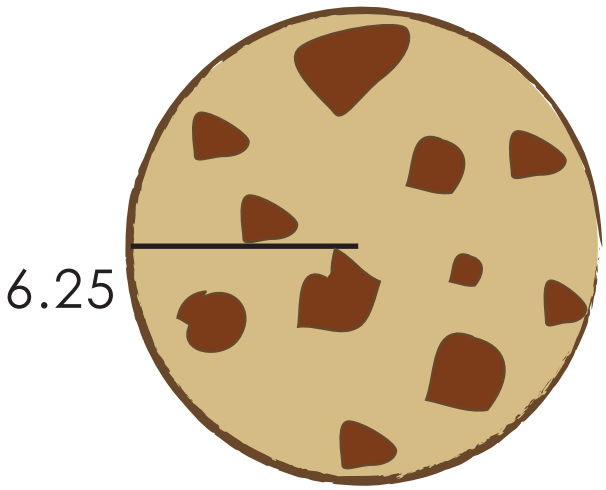
For this assignment please use π=3.14



diameter: 17

circumference: 53.38

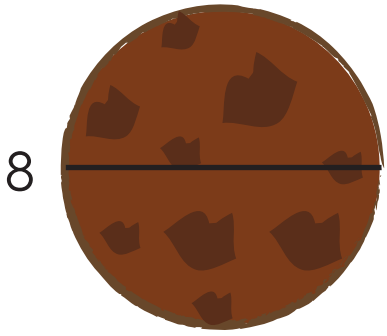
area: 226.865



diameter: 12.5

circumference: 39.25

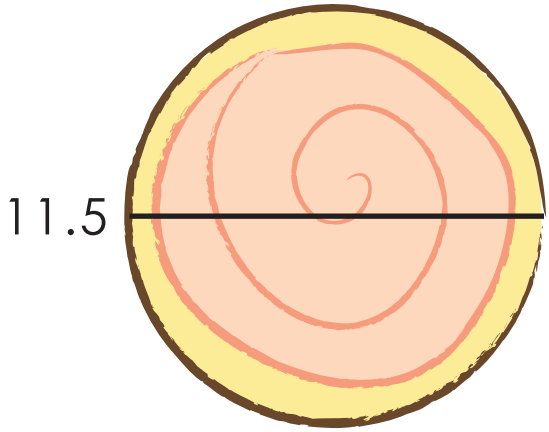
area: 122.65625



radius: 4

circumference: 25.12

area: 50.24



radius: 5.75

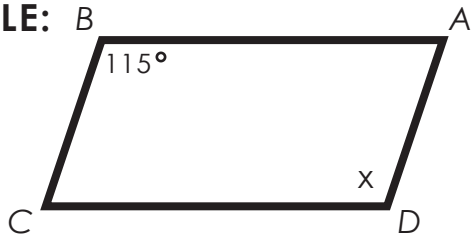
circumference: 36.11

area: 103.81625

PROPERTIES OF PARALLELOGRAMS

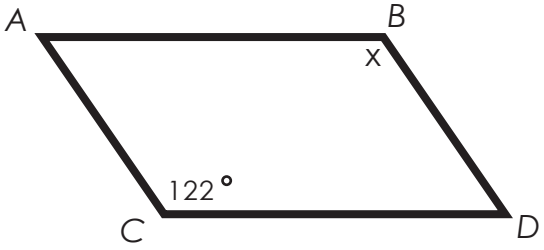
Solve for x using your knowledge of parallelogram.

EXAMPLE:



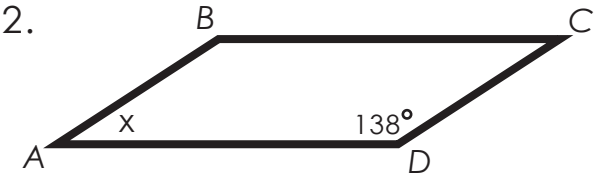
x = 115°

1.



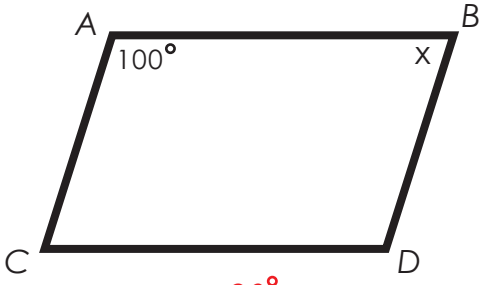
x = 122°

2.



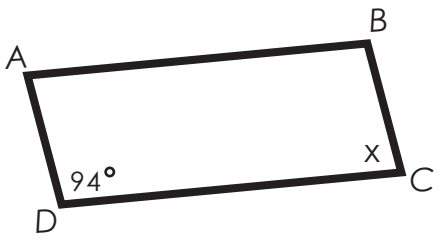
x = 42°

3.



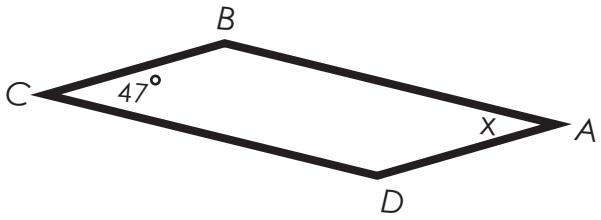
x = 80°

4.



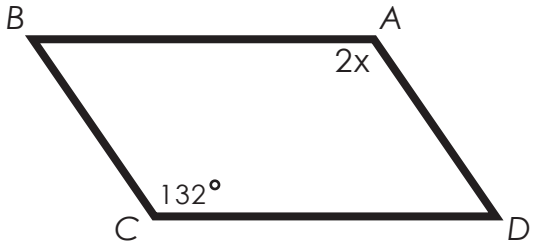
x = 86°

5.



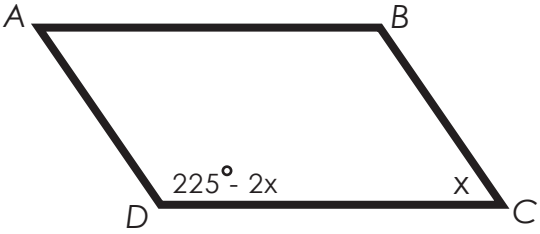
x = 47°

6.



x = 66°

7.



x = 45°

MASTER TRAINING

linear equations

addition / subtraction

solve.

1. -6 = x + 10 **x =** -16

-6 = x + 10
- 10 - 10
-16 = x

2. -5 + x = 7 **x =** 12

3. 15 = x + 3 **x =** 12

4. x - 12 = -2 **x =** 10

5. x - 4 = -8 **x =** -4

6. -9 + x = 8 **x =** 17

7. x + 7 = -18 **x =** -25

8. x - 17 = -1 **x =** 16

9. -6 + x = 7 **x =** 13

10. -16 = x - 6 **x =** -10

TRAINING COMPLETE

MASTER TRAINING

linear equations

addition / subtraction

solve.

1. 15 = x + 19 **x =** -4

15 = x + 19

- 19 - 19

-4 = x

2. x - 16 = -10 **x =** 6

3. -14 = x - 7 **x =** -7

4. x - 10 = -2 **x =** 8

5. x + 25 = -5 **x =** -30

6. x - 8 = -13 **x =** -5

7. 4 + x = 8 **x =** 4

8. 19 + x = -7 **x =** -26

9. x - 12 = -3 **x =** 9

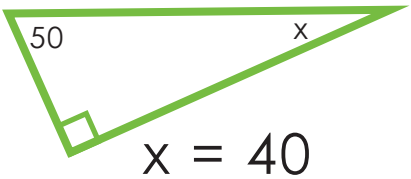
10. -17 = x + 5 **x =** -22

TRAINING COMPLETE

TRIANGLE ANGLES

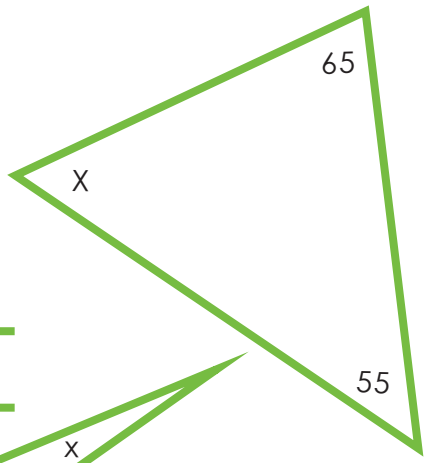
Find the unknown angles in the following triangles. Write down the missing angle and what type of triangle it is!

EXAMPLE:



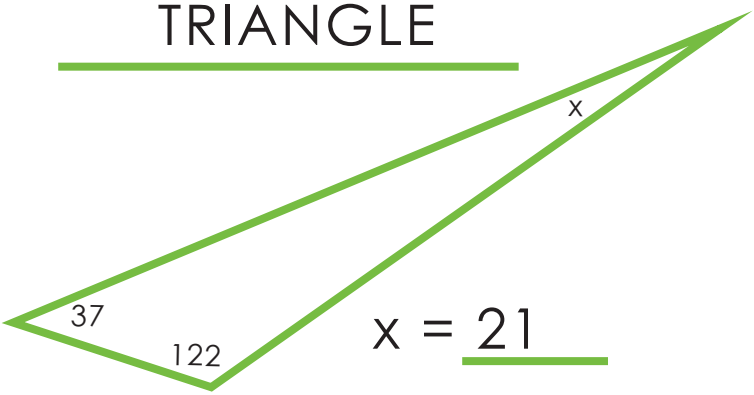
x = 40

RIGHT ANGLE TRIANGLE



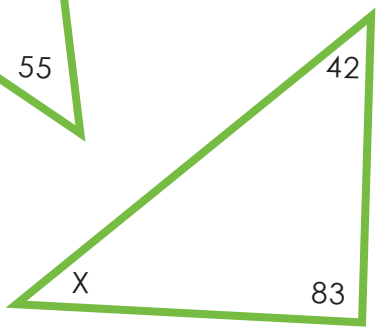
x = 60

ACUTE TRIANGLE



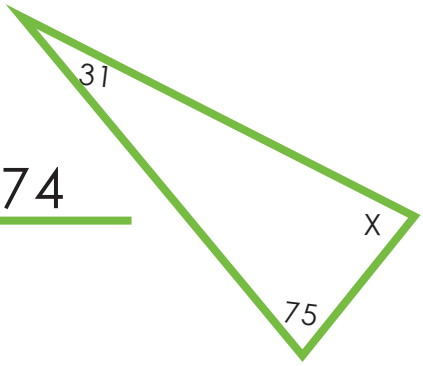
x = 21

OBTUSE TRIANGLE



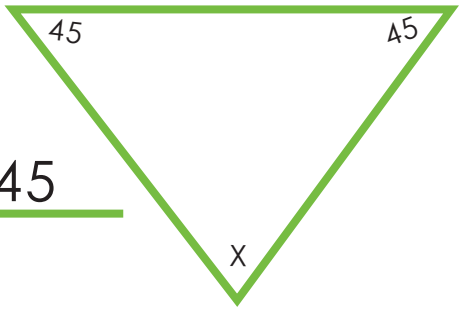
x = 55

ACUTE TRIANGLE



x = 74

ACUTE TRIANGLE



x = 45

ACUTE TRIANGLE

monomials
•multiplication•

#1

Example:

$(4x^2y^5)(4x^3y) =$

1. Multiply the coefficents.

   $(4x^2y^5)(4x^3y) = 16$

2. Multiply the variables by adding the exponents.

   $(x^2)(x^3) = x^{2+3} = x^5$

   $(y^5)(y) = y^{5+1} = y^6$

   Answer: $16x^5y^6$

Multiply the monomials.

1. $(3)(4x) =$ 12x

2. $(5xy^3)(2x^2y) =$ $10x^3y^4$

3. $(xy^8)(7xy^3) =$ $7x^2y^{11}$

4. $(y^3)(y^3) =$ y^6

5. $(3x)(4x^4y) =$ $12x^5y$

6. $(6xy^4)(2x^3y^6) =$ $12x^4y^{10}$

7. $(x^4y^5)(xy) =$ x^5y^6

8. $(2xy^5)(8x^3y) =$ $16x^4y^6$

9. $(10xy^5)(2xy) =$ $20x^2y^6$

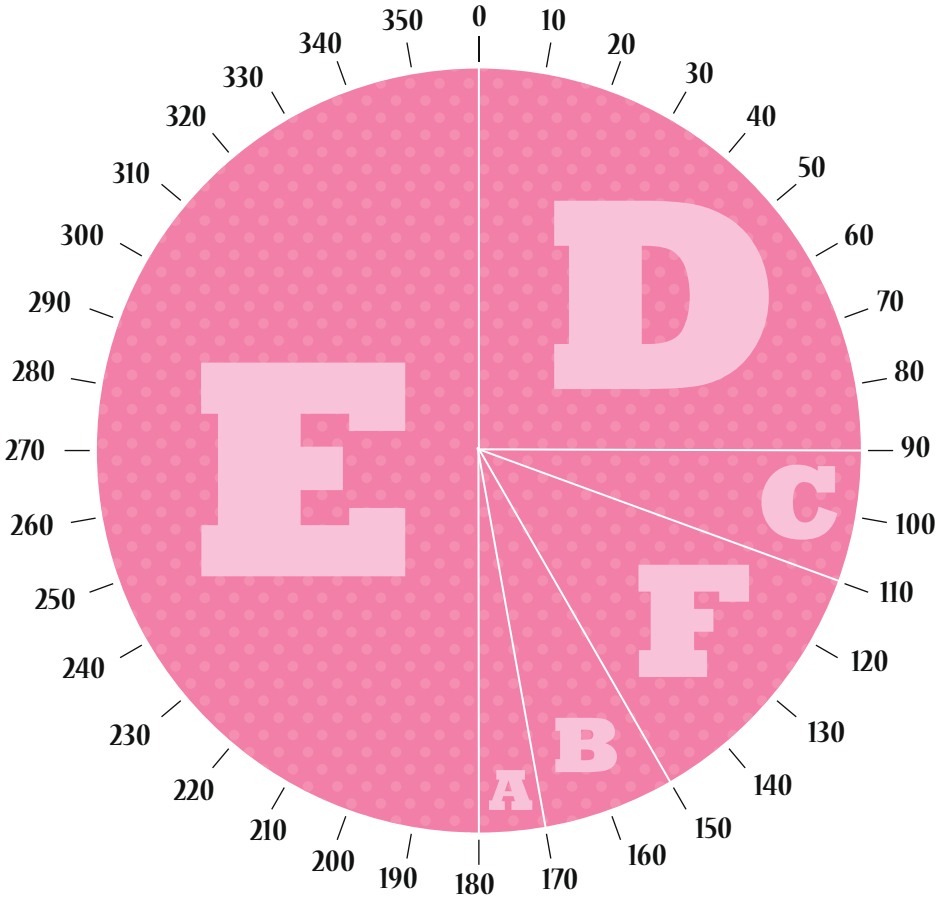
10. $(7x)(2xy) =$ $14x^2y$

Probability Darts

ANSWERS

Find the portion of the dart board that each panel occupies and use your knowledge of degrees and fractions to answer the following questions about probability.

REMEMBER: Probability is the likelihood a given outcome will occur. It is expressed as a fraction.



Fractions

A **1/36**

10°/360°

B 1/2

C 1/18

D 1/4

E 1/18

F 1/9

Use the information above to answer the questions below.

1. Is the next dart thrown more likely to hit a vowel or a consonant?
   Vowel

2. What is the probability that the next dart thrown hits panel C or panel B?
   1/18 + 1/2 = 5/9

3. Which panels have a probability **less than or equal to 1/6** that they will be hit? What is the probability that the next dart thrown hits one of them?
   1/36 + 1/8 + 1/18 + 1/9 = 1/4

monomials
•multiplication•

#4

Example:

$(4x^2y^5)(4x^2)(4x^3y) =$

1. Multiply the coefficents.
   $(4x^2y^5)(4x^2)(4x^3y) = 64$
2. Multiply the variables by adding the exponents.
   $(x^2)(x^2)(x^3) = x^{2+2+3} = x^7$
   $(y^5)(y) = y^{5+1} = y^6$
   Answer: $64x^7y^6$

Multiply the monomials.

1. $(3x^6)(7x^4y^5)(3y^7) =$ $63x^{10}y^{12}$
2. $(2xy)(3xy)(6x^8y^4) =$ $36x^{10}y^6$
3. $(5x^6y)(xy)(3xy^2) =$ $15x^8y^4$
4. $(8xy)(11xy^6)(11y) =$ $968x^2y^8$
5. $(7x^6)(xy)(x^2y) =$ $7x^9y^2$
6. $(8x^3y^9)(x^7y)(x^5y^8) =$ $8x^{15}y^{18}$
7. $(5x^3y^6)(9x^4y)(xy) =$ $45x^8y^8$
8. $(6x^2y)(xy^9)(x) =$ $6x^4y^{10}$
9. $(x)(x^8)(10x^7y) =$ $10x^{16}y$
10. $(8x^2y)(xy^7)(x^3y) =$ $8x^6y^9$

monomials
division

#4

Example:

$$\frac{(4x^3y^5)}{(2x^2y)} =$$

1. Divide the coefficents.

$$\frac{(4x^3y^5)}{(2x^2y)} = \frac{4}{2} = 2$$

2. Divide the variables by subtracting the exponents.

$$\frac{(x^3)}{(x^2)} = x^{3-2} = x \qquad \frac{(y^5)}{(y)} = y^{5-1} = y^4$$

Answer: $2xy^4$

Divide the monomials.

1. $\frac{6x^2y^5}{2xy^2} = 3xy^3$

2. $\frac{3x^4y^2}{1xy} = 3x^3y$

3. $\frac{12x^3y}{3x^2y} = 4x$

4. $\frac{9x^4y^6}{3x^3y^6} = 3x$

5. $\frac{6x^4y^6}{3x^2y^4} = 2x^2y^2$

6. $\frac{7x^3y^2}{7x^3y} = y$

7. $\frac{2x^{11}y^7}{x^8y^3} = 2x^3y^4$

8. $\frac{15xy^{14}}{5y^3} = 3xy^{11}$

9. $\frac{18x^2y^3}{3xy^3} = 6x$

10. $\frac{4y^{15}}{2y^{10}} = 2y^5$