

## 1-2 Betweenness of Points #1

- \_\_\_\_\_ 1. If D is between A and B with  $AD = 2x$ ,  $BD = 3x$ , and  $AB = 20$ , what is  $x$ ?
- \_\_\_\_\_ 2. If D is between A and B with  $AD = 3n - 1$ ,  $BD = 2n + 4$ , and  $AB = 33$ , what is  $BD$ ?
- \_\_\_\_\_ 3. If C is between X and Y with  $CX = 4n - 4$  and  $CY = n + 10$ , what is  $XY$ ?
- \_\_\_\_\_ 4. If B is between A and C with  $AB = 4n - 2$  and  $BC = 2n - 2$ , what is  $AC$ ?
- \_\_\_\_\_ 5. If B is between A and C with  $AC = 3n + 10$  and  $BC = 2n - 7$ , what is  $AB$ ?

## 1-2 Betweenness of Points #2

- \_\_\_\_\_ 1. If D is between A and B with  $AD = x$ ,  $BD = 3x$ , and  $AB = 40$ , what is  $x$ ?
- \_\_\_\_\_ 2. If D is between A and B with  $AD = 2n + 1$ ,  $BD = 8n - 1$ , and  $AB = 12$ , what is  $BD$ ?
- \_\_\_\_\_ 3. If C is between X and Y with  $CX = 6n - 3$  and  $CY = n + 4$ , what is  $XY$ ?
- \_\_\_\_\_ 4. If B is between A and C with  $AB = 4n$ ,  $BC = 2n - 2$ , and  $AC = 22$ , what is  $AB$ ?
- \_\_\_\_\_ 5. If B is between A and C with  $AC = 5n + 1$  and  $BC = 2n - 3$ , what is  $AB$ ?

## 1-2 Betweenness of Points #3

- \_\_\_\_\_ 1. If D is between A and B with  $AD = 5x$ ,  $BD = 3x$ , and  $AB = 40$ , what is  $x$ ?
- \_\_\_\_\_ 2. If D is between A and B with  $AD = n - 3$ ,  $BD = n - 1$ , and  $AB = 20$ , what is  $BD$ ?
- \_\_\_\_\_ 3. If C is between X and Y with  $CX = 6n - 2$  and  $CY = 3n + 4$ , what is  $XY$ ?
- \_\_\_\_\_ 4. If B is between A and C with  $AB = 2n$ ,  $BC = n + 8$ , and  $AC = 29$ , what is  $AB$ ?
- \_\_\_\_\_ 5. If B is between A and C with  $AC = 5n - 1$  and  $AB = 4n - 1$ , what is  $BC$ ?

## 1-3 Pythagorean Theorem #1

- \_\_\_\_\_ 1. If you walk 8 miles due East and 6 miles due South, how far from the starting point are you?
- \_\_\_\_\_ 2. If you walk 35 miles due North and then 48 miles due West, rounded to the nearest mile how far are you from your starting point?
- \_\_\_\_\_ 3. If the diagonal distance of a rectangle is 97 cm and one of the sides is 65 cm, what is the other side length?
- \_\_\_\_\_ 4. If  $A = (3, 8)$  and  $B = (10, 11)$ , what is  $AB$ ? (Round to the nearest tenth.)
- \_\_\_\_\_ 5. Which of triangle measurements below is a right triangle?  
A. 2, 4, 7                      B. 6, 8, 10                      C. 11, 12, 13                      D. 12, 14, 16

## 1-3 Pythagorean Theorem #2

- \_\_\_\_\_ 1. If you walk 9 miles due East and 40 miles due South, how far from the starting point are you?
- \_\_\_\_\_ 2. If you walk 10 miles due North and then 24 miles due West, how far are you from your starting point?
- \_\_\_\_\_ 3. If the diagonal distance of a rectangle is 25 cm and one of the sides is 7 cm, what is the other side length?
- \_\_\_\_\_ 4. If  $A = (1, 2)$  and  $B = (10, 11)$ , what is  $AB$ ? (Round to the nearest tenth.)
- \_\_\_\_\_ 5. Which of triangle measurements below is a right triangle?  
A. 1, 5, 7                      B. 3, 4, 6                      C. 16, 63, 65                      D. 19, 20, 35

## 1-3 Pythagorean Theorem #3

- \_\_\_\_\_ 1. If you walk 13 meters due East and 84 meters due South, how far from the starting point are you?
- \_\_\_\_\_ 2. If you drive 48 miles due North and then 20 miles due West, rounded to the nearest mile how far are you from your starting point?
- \_\_\_\_\_ 3. If the diagonal distance of a rectangle is 73 cm and one of the sides is 55 cm, what is the other side length?
- \_\_\_\_\_ 4. If  $A = (-3, 1)$  and  $B = (3, -5)$ , what is  $AB$ ? (Round to the nearest tenth.)
- \_\_\_\_\_ 5. Which of triangle measurements below is a right triangle?  
A. 2, 6, 8                      B. 6, 7, 10                      C. 5, 11, 12                      D. 5, 12, 13

## 1-4 A Midpoint Basic #1

- \_\_\_\_\_ 1. What is the midpoint of a line that has endpoints at (14, -3) and (10, -1)?
- \_\_\_\_\_ 2. What is the midpoint of a line that has endpoints at (0, 3) and (6, -1)?
- \_\_\_\_\_ 3. What is the midpoint of a line that has endpoints at (6, 3) and (8, --3)?
- \_\_\_\_\_ 4. What is the midpoint of a line that has endpoints at (10, -4) and (6, -2)?
- \_\_\_\_\_ 5. What is the midpoint of a line that has endpoints at (-12, -4) and (-6, -8)?

## 1-4 A Midpoint Basic #2

- \_\_\_\_\_ 1. What is the midpoint of a line that has endpoints at (2, -3) and (10, 1)?
- \_\_\_\_\_ 2. What is the midpoint of a line that has endpoints at (4, 3) and (6, -13)?
- \_\_\_\_\_ 3. What is the midpoint of a line that has endpoints at (-6, 1) and (4, 9)?
- \_\_\_\_\_ 4. What is the midpoint of a line that has endpoints at (-10, -8) and (-6, -2)?
- \_\_\_\_\_ 5. What is the midpoint of a line that has endpoints at (-2, -14) and (-6, -8)?

## 1-4 A Midpoint Basic #3

- \_\_\_\_\_ 1. What is the midpoint of a line that has endpoints at (1, -30) and (7, -10)?
- \_\_\_\_\_ 2. What is the midpoint of a line that has endpoints at (0, 2) and (6, -2)?
- \_\_\_\_\_ 3. What is the midpoint of a line that has endpoints at (16, 13) and (18, --23)?
- \_\_\_\_\_ 4. What is the midpoint of a line that has endpoints at (1, -8) and (2, -2)?
- \_\_\_\_\_ 5. What is the midpoint of a line that has endpoints at (0, -44) and (-6, -80)?

## 1-4 B Midpoint with endpoints #1

- \_\_\_\_\_ 1. Point A is at (2, 12) and B is at (8, 10). If B is the midpoint of  $\overline{AC}$ , what are the coordinates of C?
- \_\_\_\_\_ 2. Point A is at (-4, 8) and B is at (2, 22). If B is the midpoint of  $\overline{AC}$ , what are the coordinates of C?
- \_\_\_\_\_ 3. Point A is at (3, 1) and B is at (8, -2). If B is the midpoint of  $\overline{AC}$ , what are the coordinates of C?
- \_\_\_\_\_ 4. Point A is at (4, 6) and B is at (12, 10). If B is the midpoint of  $\overline{AC}$ , what are the coordinates of C?
- \_\_\_\_\_ 5. Point A is at (-2, 14) and B is at (-6, 8). If B is the midpoint of  $\overline{AC}$ , what are the coordinates of C?

## 1-4 B Midpoint with endpoints #2

- \_\_\_\_\_ 1. A = (1, 3) and B = (3, 10). If B is the midpoint of  $\overline{AC}$ , what are the coordinates of C?
- \_\_\_\_\_ 2. A = (-3, 8) and B = (0, 2). If B is the midpoint of  $\overline{AC}$ , what are the coordinates of C?
- \_\_\_\_\_ 3. A = (-1, 5) and B = (4, 2). If B is the midpoint of  $\overline{AC}$ , what are the coordinates of C?
- \_\_\_\_\_ 4. A = (-3, 8) and B = (2, 11). If B is the midpoint of  $\overline{AC}$ , what are the coordinates of C?
- \_\_\_\_\_ 5. A = (-9, 8) and B = (-7, 20). If B is the midpoint of  $\overline{AC}$ , what are the coordinates of C?

## 1-4 B Midpoint with endpoints #3

- \_\_\_\_\_ 1. A = (-8, 8) and B = (6, 22). If B is the midpoint of  $\overline{AC}$ , what are the coordinates of C?
- \_\_\_\_\_ 2. A = (3, -3) and B = (2, 12). If B is the midpoint of  $\overline{AC}$ , what are the coordinates of C?
- \_\_\_\_\_ 3. A = (8, 0) and B = (2, 22). If B is the midpoint of  $\overline{AC}$ , what are the coordinates of C?
- \_\_\_\_\_ 4. A = (-2, 5) and B = (2, 22). If B is the midpoint of  $\overline{AC}$ , what are the coordinates of C?
- \_\_\_\_\_ 5. A = (-14, 1) and B = (14, 32). If B is the midpoint of  $\overline{AC}$ , what are the coordinates of C?

## 1-4 C Midpoint with variables #1

- \_\_\_\_\_ 1. If B is the midpoint of  $\overline{AC}$  and  $AC = 6n + 20$ , what is AB? (Expression answer)
- \_\_\_\_\_ 2. If X is the midpoint of  $\overline{CN}$  and  $CX = 2n - 10$ , what is CN?
- \_\_\_\_\_ 3. If C is between X and Y with  $CX = 8n - 4$  and  $CY = 2n + 10$ , what is XY?
- \_\_\_\_\_ 4. If B is the midpoint of  $\overline{AC}$  and  $AC = 8n - 2$ , what is AB?
- \_\_\_\_\_ 5. If C is between X and Y with  $XY = 6n - 4$  and  $CY = n + 1$ , what is CX?

## 1-4 C Midpoint with variables #2

- \_\_\_\_\_ 1. If B is the midpoint of  $\overline{AC}$  and  $AC = 8n + 12$ , what is AB? (Expression answer)
- \_\_\_\_\_ 2. If X is the midpoint of  $\overline{CN}$  and  $CX = 6n - 16$ , what is CN?
- \_\_\_\_\_ 3. If C is between X and Y with  $CX = 6n - 2$  and  $CY = 2n + 10$ , what is XY?
- \_\_\_\_\_ 4. If B is the midpoint of  $\overline{AC}$  and  $AC = 2n - 6$ , what is AB?
- \_\_\_\_\_ 5. If C is between X and Y with  $XY = 8n - 4$  and  $CY = 2n + 10$ , what is CX?

## 1-4 C Midpoint with variables #3

- \_\_\_\_\_ 1. If B is the midpoint of  $\overline{AC}$  and  $AC = 2n + 40$ , what is AB? (Expression answer)
- \_\_\_\_\_ 2. If X is the midpoint of  $\overline{CN}$  and  $CX = 8n - 14$ , what is CN?
- \_\_\_\_\_ 3. If C is between X and Y with  $CX = 8n + 1$  and  $CY = 6n + 3$ , what is XY?
- \_\_\_\_\_ 4. If B is the midpoint of  $\overline{AC}$  and  $AC = 20n + 30$ , what is AB?
- \_\_\_\_\_ 5. If C is between X and Y with  $XY = 10n + 4$  and  $CY = 4n + 3$ , what is CX?

## 1-5 A Angle Bisection #1

\_\_\_\_\_ 1.  $\overrightarrow{BX}$  bisects  $\angle ABC$ . If  $\angle ABX = 30^\circ$ , what is  $\angle ABC$ ?

\_\_\_\_\_ 2.  $\overrightarrow{BX}$  bisects  $\angle ABC$ . If  $\angle ABX = 3n+10$ , what is  $\angle ABC$ ?

\_\_\_\_\_ 3.  $\overrightarrow{BD}$  bisects  $\angle ABC$ . If  $\angle ABC = 20^\circ$ , what is  $\angle DAB$ ?

\_\_\_\_\_ 4.  $\overrightarrow{BY}$  bisects  $\angle ABC$ . If  $\angle ABC = 2n+4$ , what is  $\angle ABY$ ?

\_\_\_\_\_ 5.  $\overrightarrow{AN}$  bisects  $\angle CAB$ . If  $\angle CAN = 4n+12$ , what is  $\angle CAB$ ?

## 1-5 A Angle Bisection #2

\_\_\_\_\_ 1.  $\overrightarrow{BX}$  bisects  $\angle ABC$ . If  $\angle ABX = 40^\circ$ , what is  $\angle ABC$ ?

\_\_\_\_\_ 2.  $\overrightarrow{BX}$  bisects  $\angle ABC$ . If  $\angle ABX = 4n+6$ , what is  $\angle ABC$ ?

\_\_\_\_\_ 3.  $\overrightarrow{BD}$  bisects  $\angle ABC$ . If  $\angle ABC = 60^\circ$ , what is  $\angle DAB$ ?

\_\_\_\_\_ 4.  $\overrightarrow{BY}$  bisects  $\angle ABC$ . If  $\angle ABC = 8n+4$ , what is  $\angle ABY$ ?

\_\_\_\_\_ 5.  $\overrightarrow{AN}$  bisects  $\angle CAB$ . If  $\angle CAN = 12n+16$ , what is  $\angle CAB$ ?

## 1-5 A Angle Bisection #3

\_\_\_\_\_ 1.  $\overrightarrow{BX}$  bisects  $\angle ABC$ . If  $\angle ABX = 36^\circ$ , what is  $\angle ABC$ ?

\_\_\_\_\_ 2.  $\overrightarrow{BX}$  bisects  $\angle ABC$ . If  $\angle ABX = 5n+1$ , what is  $\angle ABC$ ?

\_\_\_\_\_ 3.  $\overrightarrow{BD}$  bisects  $\angle ABC$ . If  $\angle ABC = 24^\circ$ , what is  $\angle DAB$ ?

\_\_\_\_\_ 4.  $\overrightarrow{BY}$  bisects  $\angle ABC$ . If  $\angle ABC = 20n+32$ , what is  $\angle ABY$ ?

\_\_\_\_\_ 5.  $\overrightarrow{AN}$  bisects  $\angle CAB$ . If  $\angle CAN = 10n+2$ , what is  $\angle CAB$ ?

## 1-5 B Types of Angles #1

- \_\_\_\_\_ 1. If  $\angle A$  and  $\angle B$  are a linear pair with  $\angle A = n + 40$  and  $\angle B = n + 60$ , what is the measurement of  $\angle B$ ?
- \_\_\_\_\_ 2. If  $\angle A$  and  $\angle B$  are complementary angles with  $\angle A = 4n + 12$  and  $\angle B = 6n + 8$ , what is the measurement of  $\angle B$ ?
- \_\_\_\_\_ 3. If  $\angle A$  and  $\angle B$  are vertical angles with  $\angle A = 3n + 60$  and  $\angle B = 7n + 20$ , what is the measurement of  $\angle B$ ?
- \_\_\_\_\_ 4. What are the measures of two supplementary angles if the difference of their measures is  $8^\circ$  ?  
A. 39, 51                      B. 76, 84                      C. 86, 94                      D. 41, 49
- \_\_\_\_\_ 5. If  $\angle A$  and  $\angle B$  are vertical angles with  $\angle A = n + 60$  and  $\angle B = 2n + 10$ , what is the measurement of  $\angle A$ ?

## 1-5 B Types of Angles #2

- \_\_\_\_\_ 1. If  $\angle A$  and  $\angle B$  are a linear pair with  $\angle A = 3n$  and  $\angle B = n + 60$ , what is the measurement of  $\angle B$ ?
- \_\_\_\_\_ 2. If  $\angle A$  and  $\angle B$  are complementary angles with  $\angle A = 2n + 12$  and  $\angle B = 8n + 8$ , what is the measurement of  $\angle B$ ?
- \_\_\_\_\_ 3. If  $\angle A$  and  $\angle B$  are vertical angles with  $\angle A = 6n + 60$  and  $\angle B = 7n + 58$ , what is the measurement of  $\angle B$ ?
- \_\_\_\_\_ 4. If  $\angle A$  and  $\angle B$  are complementary angles with  $\angle A = 80^\circ$ , what is  $\angle B$ ?
- \_\_\_\_\_ 5. If  $\angle A$  and  $\angle B$  are vertical angles with  $\angle A = 80^\circ$ , what is  $\angle B$ ?

## 1-5 B Types of Angles #3

- \_\_\_\_\_ 1. If  $\angle A$  and  $\angle B$  are a linear pair with  $\angle A = n + 40$  and  $\angle B = n + 60$ , what is the measurement of  $\angle B$ ?
- \_\_\_\_\_ 2. If  $\angle A$  and  $\angle B$  are complementary angles with  $\angle A = 4n + 12$  and  $\angle B = 6n + 8$ , what is the measurement of  $\angle B$ ?
- \_\_\_\_\_ 3. If  $\angle A$  and  $\angle B$  are vertical angles with  $\angle A = 3n + 60$  and  $\angle B = 7n + 20$ , what is the measurement of  $\angle B$ ?
- \_\_\_\_\_ 4. If  $\angle A$  and  $\angle B$  are supplementary angles with  $\angle A = 80^\circ$ , what is  $\angle B$ ?
- \_\_\_\_\_ 5. If  $\angle A$  and  $\angle B$  are vertical angles with  $\angle A = n + 40$  and  $\angle B = 3n + 10$ , what is the measurement of  $\angle A$ ?

## 2-1 Converse, Inverse, and Contrapositive

- \_\_\_\_\_ 1. What is the converse of the following statement? \_\_\_\_\_  
*If Joe goes fishing, then he needs bait.*  
A. If he needs bait, then Joe goes fishing.  
B. If Joe does not go fishing, then he does not need bait.  
C. If he does not need bait, then Joe does not go fishing.  
D. If Joe goes fishing, then he does not need bait.
- \_\_\_\_\_ 2. Consider the statement “If you are nice, you have a lot of friends.”  
“*If you are not nice, you don’t have a lot of friends*” is the \_\_\_\_\_ of above.  
A. Converse                      B. Inverse                      C. Contrapositive                      D. Sublimation
- \_\_\_\_\_ 3. Consider the statement “If you are nice, you have a lot of friends.”  
“*If you don’t have a lot of friends, then you are not nice*” is the \_\_\_\_\_ of above.  
A. Converse                      B. Inverse                      C. Contrapositive                      D. Sublimation
- \_\_\_\_\_ 4. The contrapositive of “if you have a dog, you like cats” is  
“if you don’t like cats, you love dogs.”  
A. True                      B. False
- \_\_\_\_\_ 5. Statement: *If lines are skew, then they are not coplanar.*  
What is the contrapositive of the statement?  
A. If lines are not coplanar, then they are skew.  
B. If lines are not skew, then they are coplanar.  
C. If lines are coplanar, then they are not skew.  
D. If lines are skew, then they are coplanar.

## 2-2 Logic

- \_\_\_\_\_ 1. Let  $p$  represent  $\sqrt{11} = z$ , and let  $q$  represent  $z$  is a rational number.  
Which is a representation of the statement:  
“*If  $\sqrt{11} = z$ , then  $z$  is not a rational number*”?  
A.  $\sim p \rightarrow \sim q$                       B.  $p \rightarrow q$                       C.  $p \rightarrow \sim q$                       D.  $\sim q \rightarrow \sim p$
- \_\_\_\_\_ 2. “If you like dogs, you like cats” is represented by  $p \rightarrow q$ . What would be the symbolic representation of “if you don’t like cats, you like dogs”?
- \_\_\_\_\_ 3. “If you have a laptop, then you have a computer” is represented by  $p \rightarrow q$ . What is the symbolic representation of “If you have a computer, then you don’t have a laptop”?
- \_\_\_\_\_ 4. Let  $p$  represent  $x$  is a whole number and  $q$  represent  $x$  is an integer.  
What would represent “if  $x$  is not a whole number,  $x$  is not an integer”?
- \_\_\_\_\_ 5. Give the symbol for the following words:  
\_\_\_\_\_ A. And                      \_\_\_\_\_ B. Or



## 2-3 Properties

- \_\_\_\_\_ 1. If  $XY - 4 = BC$ , then  $XY = BC + 4$  demonstrates what property?
- \_\_\_\_\_ 2. If  $\angle XYZ + \angle ABC = \angle ABC + \angle CWH$ , then  $\angle XYZ = \angle CWH$  demonstrates what property?
- \_\_\_\_\_ 3. If  $AB - NP = BC - NP$ , then  $AB = BC$  demonstrates what property?
- \_\_\_\_\_ 4. If  $AB = 6$  and  $AB + BC = 10$ , then  $6 + BC = 10$  demonstrates what property?
- \_\_\_\_\_ 5. If  $\angle 1 + \angle 2 = 90$  and  $\angle 2 = \angle 5 + \angle 6$ , then  $\angle 1 + \angle 5 + \angle 6 = 90$ .

## 2-4 Venn Diagrams

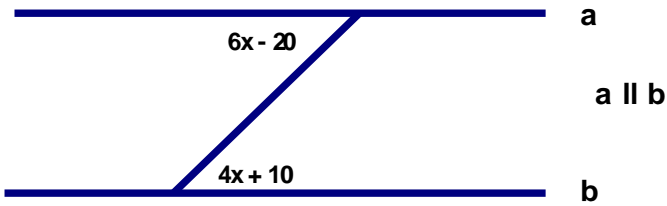
- \_\_\_\_\_ 1. 4 kids are on both the chess team and the bowling team. If there are a total of 10 kids on the chess team and a total of 24 kids who are on the chess team or bowling team, how many kids are on the bowling team?
- \_\_\_\_\_ 2. 20 kids are on the basketball team and there are 14 kids on the hockey team. If there are a total of 6 kids who are on both the basketball team and the hockey team, how many total kids are on both teams?
- \_\_\_\_\_ 3. In my class, everyone plays either golf or tennis. 14 play golf and 8 play tennis. If 3 play both tennis and golf, how many kids are in my class?
- \_\_\_\_\_ 4. I have a total of 14 kids. If 10 of my kids play soccer and 12 play tennis, how many play both tennis and soccer?
- \_\_\_\_\_ 5. There are 14 kids in band and 16 in chorus. If 4 of these kids are in both chorus and band, how many total kids are in either band or chorus?

## 2-5 Area and Perimeter

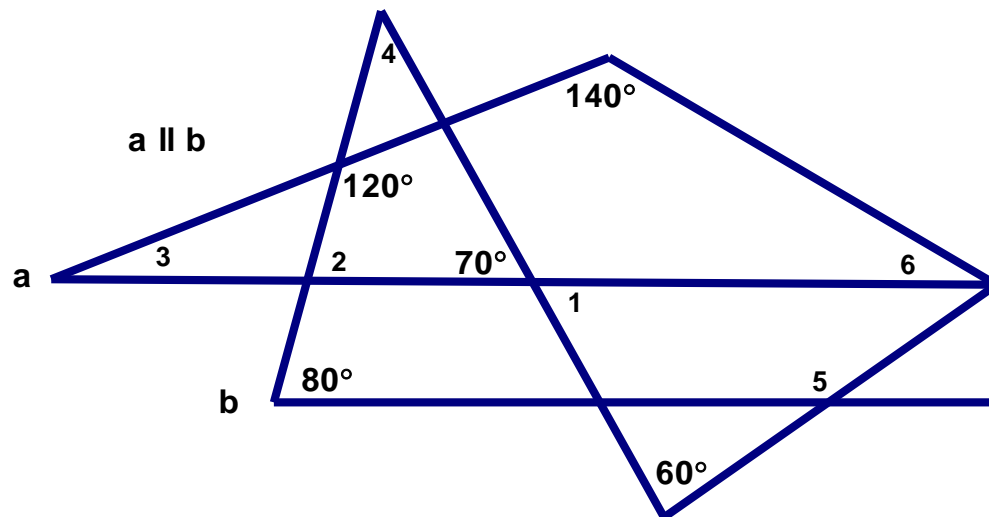
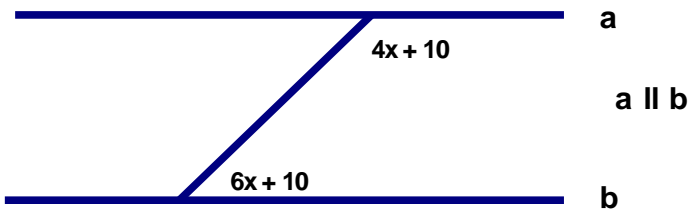
- \_\_\_\_\_ 1. What is the area of a circle with a diameter of 8 cm?
- \_\_\_\_\_ 2. What is the perimeter of a triangle with the following vertices:  
(2, 5) (7, 5) (7, 17)
- \_\_\_\_\_ 3. What is the circumference of a circle with a diameter of 8 cm?
- \_\_\_\_\_ 4. If the perimeter of a triangle is 40 cm with sides of length  
 $3n$ ,  $2n + 12$ , and  $5n - 2$ , what is the value of  $n$ ?
- \_\_\_\_\_ 5. What is the area of a square whose perimeter is 40 cm?

# Chapter 3 Finding Missing Angles

- \_\_\_\_\_ 1. What is the value of  $x$  in the figure below?  
 A.  $15^\circ$                       B.  $16^\circ$                       C.  $19^\circ$                       D.  $21^\circ$



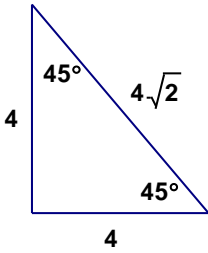
- \_\_\_\_\_ 2. What is the value of  $x$  in the figure below?  
 A.  $15^\circ$                       B.  $16^\circ$                       C.  $19^\circ$                       D.  $0^\circ$



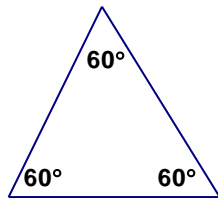
- \_\_\_\_\_ 3. What is the measurement of  $\angle 1$  above?  
 A.  $20^\circ$                       B.  $30^\circ$                       C.  $70^\circ$                       D.  $80^\circ$
- \_\_\_\_\_ 4. What is the measurement of  $\angle 3$  above?  
 A.  $20^\circ$                       B.  $30^\circ$                       C.  $70^\circ$                       D.  $80^\circ$
- \_\_\_\_\_ 5. What is the measurement of  $\angle 6$  above?  
 A.  $20^\circ$                       B.  $30^\circ$                       C.  $70^\circ$                       D.  $80^\circ$

# 4-1 Classifying Triangles

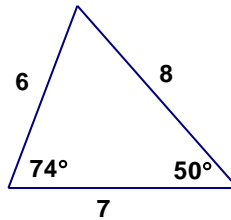
Triangle A



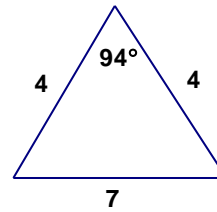
Triangle B



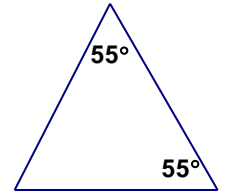
Triangle C



Triangle D



Triangle E



List all triangles (there may be more than 1 or none at all) above that are

1. Scalene \_\_\_\_\_

2. Acute \_\_\_\_\_

3. Obtuse \_\_\_\_\_

4. Right \_\_\_\_\_

5. Isosceles \_\_\_\_\_

6. Equilateral \_\_\_\_\_

# 4-2 Congruent Triangles

- \_\_\_\_\_ 1. Let the following be true:  $\triangle ABC \cong \triangle XYZ$ ,  $AB = 8$ ,  $BC = 10$ ,  $AC = 11$ .  
If  $XY = 2n$ , what is the value of  $n$ ?
- \_\_\_\_\_ 2. If  $\triangle ABC \cong \triangle XYZ$ , which of the following must be true?  
A.  $\angle A = \angle Z$       B.  $AC = XY$       C.  $XZ = BC$       D. None of the above
- \_\_\_\_\_ 3. If  $\triangle RST \cong \triangle HIJ$ ,  $\angle R = 97^\circ$ ,  $\angle J = 37^\circ$ , and  $\angle S = 4x + 14$ , what is the value of  $x$ ?
- \_\_\_\_\_ 4. If  $\triangle ABC \cong \triangle XYZ$ ,  $\angle A = 40^\circ$ ,  $\angle C = 80^\circ$ , what is the measurement of  $\angle X$ ?
- \_\_\_\_\_ 5. If  $\triangle ABC \cong \triangle ERT$  with  $AB = 10$ ,  $BC = 13$ ,  $\angle A = 39^\circ$ , and  $\angle R = 88^\circ$ , what is  $RT$ ?  
A.  $39^\circ$       B.  $88^\circ$       C. 10      D. 13

# 4-3 Congruent Triangles by Proof

Figure 1

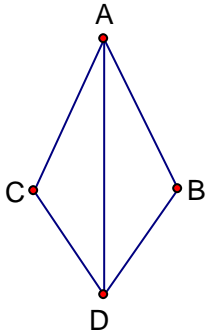


Figure 2

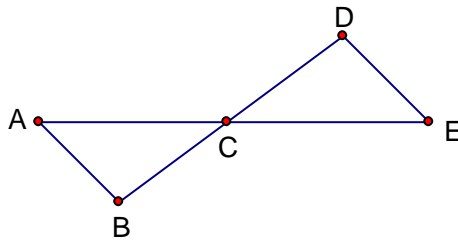


Figure 3

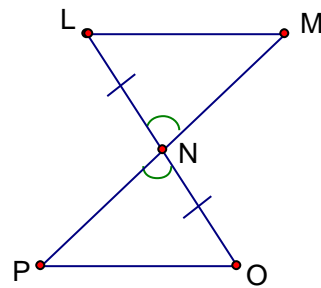


Figure 4

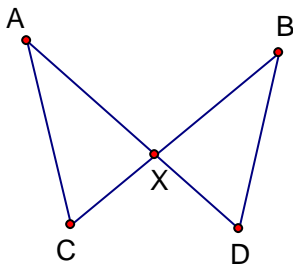


Figure 5

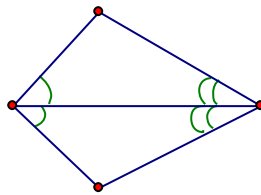
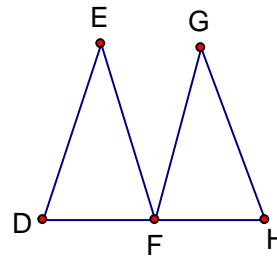


Figure 6



- \_\_\_\_\_ 1. In figure 1 above, what postulate would be used to prove that  $\triangle ABD \cong \triangle ACD$  if  $\overline{AC} \cong \overline{AB}$  and  $\overline{CD} \cong \overline{BD}$ ?
- \_\_\_\_\_ 2. In figure 2 above,  $\overline{AE}$  and  $\overline{BD}$  bisect each other at point C. What postulate would be used to prove that  $\triangle ABC \cong \triangle EDC$ ?
- \_\_\_\_\_ 3. In figure 3 above, what additional information is needed to prove that  $\triangle MNL$  is congruent to  $\triangle PNO$  by ASA?
- \_\_\_\_\_ 4. In figure 4 above,  $AX = BX$  and  $CX = DX$ . What postulate would be used to prove that  $\triangle AXC \cong \triangle BXD$ ?
- \_\_\_\_\_ 5. In figure 5 above, what postulate would be used to prove that the triangles are congruent?
- \_\_\_\_\_ 6. In figure 6 above, which statement below does not necessarily describe the triangles shown if  $\triangle DEF \cong \triangle FGH$ ?
- A.  $\triangle EDF \cong \triangle GFH$                       C.  $\triangle EFD \cong \triangle GHF$   
 B.  $\triangle FDE \cong \triangle FGH$                       D.  $\triangle FED \cong \triangle HGF$

## 4-4 Slope

- \_\_\_\_\_ 1. Find the equation of the line, in slope intercept form, that goes through the point (2, 8) and has a slope of -3.
- \_\_\_\_\_ 2. Give the equation of the line, in slope intercept form, that is parallel to  $y = 8x - 5$  and passes through the point (1, 20),
- \_\_\_\_\_ 3. Give the equation of the line, in slope intercept form, that is perpendicular to  $y = 2x - 5$  and passes through the point (2, 8).
- \_\_\_\_\_ 4. Which equation would be perpendicular to the  $y = -\frac{1}{7}x + 3$ ?
- A.  $y = -\frac{1}{7}x - 3$       B.  $y = \frac{1}{7}x + 3$       C.  $y = 7x - 5$       D. None of the above
- \_\_\_\_\_ 5. Give the equation in slope intercept form that goes through (2, 4) and is parallel to the line  $y = 5x - 3$ .
- A.  $y = 5x + 3$       B.  $y = -5x + 12$       C.  $y = -\frac{1}{5}x + 12$       D.  $y = 5x - 6$

## 5-1 Lengths of the Sides of a Triangle

- \_\_\_\_\_ 1. Which set of numbers could be a measure of the sides of a triangle?
- A. 2, 1, 3      B. 3, 10, 15      C. 4, 6, 3      D. 3, 7, 3
- \_\_\_\_\_ 2. Which set of numbers could be a measure of the sides of a triangle?
- A. 2, 4, 2      B. 20, 4, 15      C. 4, 6, 1      D. 5, 7, 5
- \_\_\_\_\_ 3. If two sides of a triangle are 6 cm and 8 cm, what must be true about the third side?
- A.  $2 \leq m < 14$       B.  $2 < m < 14$       C.  $2 > m > 14$       D.  $2 \leq m \leq 14$
- \_\_\_\_\_ 4. If two sides of a triangle have the measurements of 9 and 9, what could the third leg be?
- A.  $1 < m < 18$       B.  $0 < m \leq 18$       C.  $0 < m < 9$       D. None of the above
- \_\_\_\_\_ 5. If two sides of a triangle have the measurements of 3 and 7, what could the third leg be?
- A.  $4 < m > 10$       B.  $4 \leq m \leq 10$       C.  $4 < m < 10$       D. None of the above

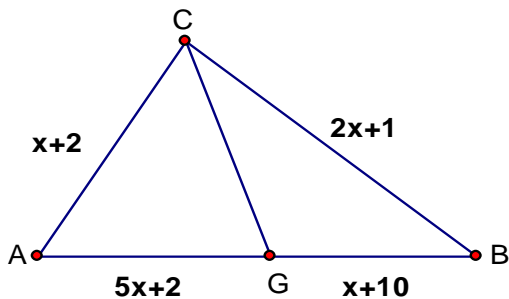
## 5-2 Side-Angle Relationship

- \_\_\_\_\_ 1. In  $\triangle RST$ ,  $\angle R = 6x + 30$ ,  $\angle S = 15x - 5$ , and  $\angle T = x + 45$ . Choose the list of sides of  $\triangle RST$  that are ordered correctly from longest to shortest.  
 A.  $\overline{TR}, \overline{ST}, \overline{RS}$       B.  $\overline{ST}, \overline{RS}, \overline{TR}$       C.  $\overline{RS}, \overline{ST}, \overline{TR}$       D.  $\overline{ST}, \overline{TR}, \overline{RS}$
- \_\_\_\_\_ 2. In  $\triangle RST$ ,  $\angle R = x + 10$ ,  $\angle S = x + 5$ , and  $\angle T = 3x - 35$ . Choose the list of sides of  $\triangle RST$  that are ordered correctly from longest to shortest.  
 A.  $\overline{RS}, \overline{ST}, \overline{TR}$       B.  $\overline{ST}, \overline{RS}, \overline{TR}$       C.  $\overline{TR}, \overline{RS}, \overline{ST}$       D.  $\overline{ST}, \overline{TR}, \overline{RS}$
- \_\_\_\_\_ 3. In  $\triangle ABC$ ,  $\angle A = 2x$ ,  $\angle B = x + 60$ , and  $\angle C = 2x + 20$ . Which side is the longest?  
 A.  $\overline{AB}$       B.  $\overline{BC}$       C.  $\overline{AC}$       D.  $\angle A$
- \_\_\_\_\_ 4. In  $\triangle RST$ ,  $\angle R = 4x + 20$ ,  $\angle S = 5x$ , and  $\angle T = x + 60$ .  
 Choose the list of sides of  $\triangle RST$  that are ordered correctly from longest to shortest.  
 A.  $\overline{TR}, \overline{RS}, \overline{ST}$       B.  $\overline{ST}, \overline{RS}, \overline{TR}$       C.  $\overline{RS}, \overline{ST}, \overline{TR}$       D.  $\overline{ST}, \overline{TR}, \overline{RS}$
- \_\_\_\_\_ 5. In  $\triangle ABC$ ,  $A = (3, 4)$ ,  $B = (2, -1)$ , and  $C = (9, 2)$ . Which angle is largest?  
 A.  $\angle A$       B.  $\angle B$       C.  $\angle C$       D. It can't be determined.

## 5-3 Median, Bisectors, Altitudes, and Exterior Angles

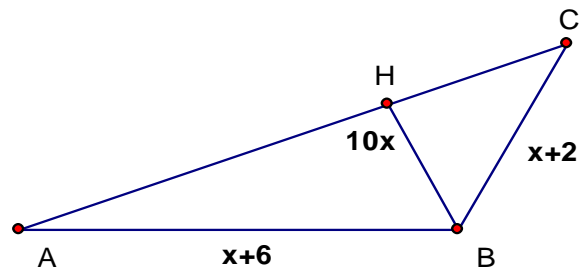
- \_\_\_\_\_ 1. In  $\triangle ABC$ ,  $A = (2, 5)$ ,  $B = (10, -1)$ , and  $C = (6, -2)$ .  
 What are the coordinates of X if  $\overline{CX}$  is a median of  $\triangle ABC$ ?
- \_\_\_\_\_ 2. In  $\triangle ABC$ ,  $A = (4, 6)$ ,  $B = (1, 7)$ , and  $C = (-2, -2)$ .  
 What are the coordinates of X if  $\overline{CX}$  is a median of  $\triangle ABC$ ?
- \_\_\_\_\_ 3. In  $\triangle CWH$ ,  $C = (-4, 4)$ ,  $W = (3, 9)$ , and  $H = (-4, -1)$ .  
 What are the coordinates of A if  $\overline{WA}$  is a median of  $\triangle CWH$ ?

4. Find BC if  $\overline{CG}$  is a median of  $\triangle ABC$ .



BC = \_\_\_\_\_

5. Find BC if  $\overline{BH}$  is an altitude of  $\triangle ABC$ .



BC = \_\_\_\_\_

## 6-1 Angles of Polygons

\_\_\_\_\_ 1. Tell the sum of the measures of the interior angles of the a HEXAGON.

\_\_\_\_\_ 2. How many degrees is each interior angle of a regular decagon?

\_\_\_\_\_ 3. The measure of an interior angle of a regular polygon is 108 degrees.  
How many sides must this polygon have?

Figure 1

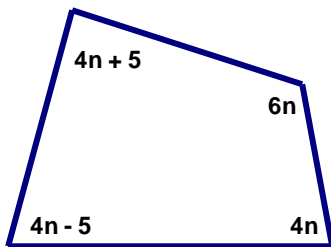
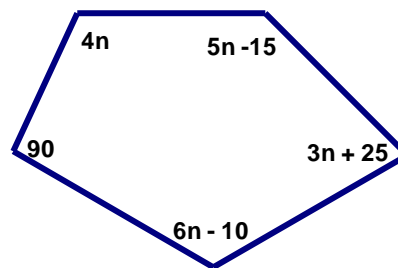


Figure 2



\_\_\_\_\_ 4. What is the value of  $n$  in Figure 1 above?

\_\_\_\_\_ 5. What is the value of  $n$  in Figure 2 above?

## 6-2 Parallelograms

\_\_\_\_\_ 1. Given parallelogram ABCD find D knowing  $A = (0, 0)$   $B = (6, 0)$ ,  $C = (3, 4)$

\_\_\_\_\_ 2. Which of the following is not true about a parallelogram?

- A. The diagonals bisect each other.
- B. Any two consecutive angles are complementary.
- C. Any two opposite sides are congruent.
- D. Any two opposite angles are congruent.

\_\_\_\_\_ 3. Given parallelogram ABCD find D knowing  $A = (-3, -5)$   $B = (1, -5)$ ,  $C = (-20, -15)$

\_\_\_\_\_ 4. Opposite angles are always congruent in a(n)

- A. trapezoid
- B. quadrilateral
- C. parallelogram
- D. isosceles trapezoid

\_\_\_\_\_ 5. Which of the following is NOT true of parallelograms?

- A. The opposite sides are congruent
- B. The opposite angles are congruent
- C. Consecutive angles are complementary
- D. The diagonals bisect each other



## 6-3 Rectangles, Rhombi, and Isosceles Trapezoids

Figure 1

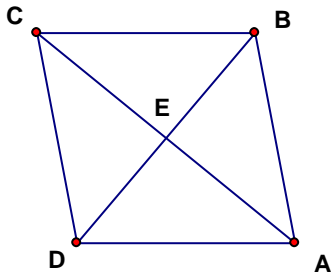
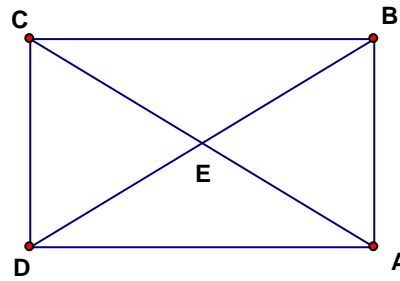


Figure 2



- \_\_\_\_\_ 1. In figure 1 above, ABCD is a rhombus. If  $AC = 30$  cm and  $BD = 40$  cm, what is the perimeter of ABCD?
- \_\_\_\_\_ 2. In figure 2, ABCD is a rectangle. If  $AC = 50$  cm and  $BC = 40$  cm, what is the length of  $\overline{DC}$ ?
- \_\_\_\_\_ 3. In which of the following do the diagonals bisect the angles?  
A. rhombus      B. rectangle      C. trapezoid      D. parallelogram
- \_\_\_\_\_ 4. Not all rectangles have \_\_\_\_\_.  
A. diagonals that bisect each other  
B. four congruent sides  
C. diagonals that are congruent  
D. consecutive angles that are supplementary.
- \_\_\_\_\_ 5. Which of the following quadrilaterals could have diagonals that are congruent but do not bisect each other?  
A. rhombus      B. rectangle      C. trapezoid      D. parallelogram

# 7-1 Proportions and Side Splitter

\_\_\_\_\_ 1. Find the value of n:  $\frac{n}{4} = \frac{7}{2}$

\_\_\_\_\_ 2. Find the value of n:  $\frac{4}{n+2} = \frac{5}{n+3}$

Figure 1

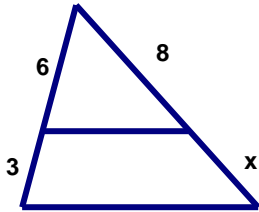


Figure 2

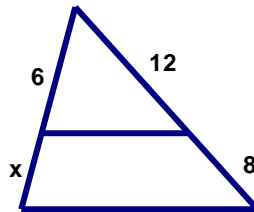
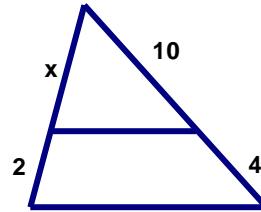


Figure 3



\_\_\_\_\_ 3. What is the value of x in Figure 1 above?

\_\_\_\_\_ 4. What is the value of x in Figure 2 above?

\_\_\_\_\_ 5. What is the value of x in Figure 3 above?

## 7-2 Similar Triangles

Figure 1

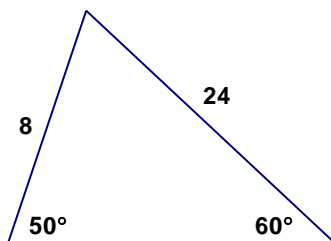
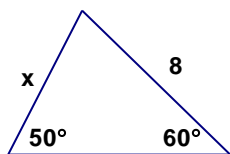


Figure 2

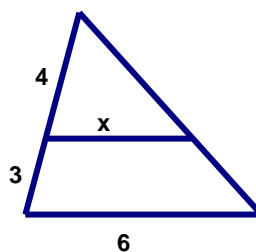


Figure 3

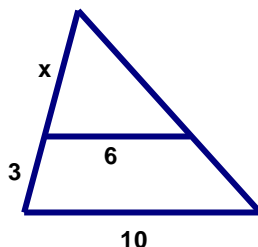


Figure 4

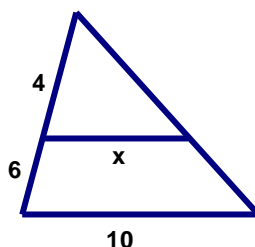
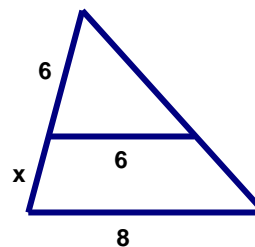


Figure 5

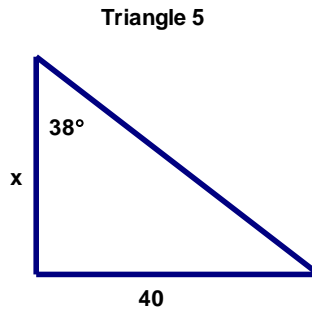
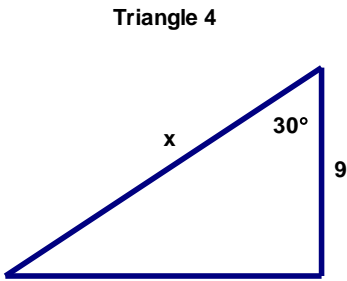
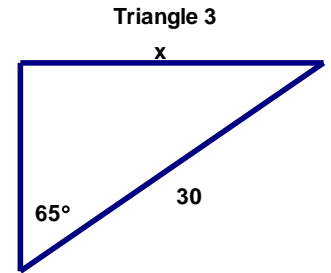
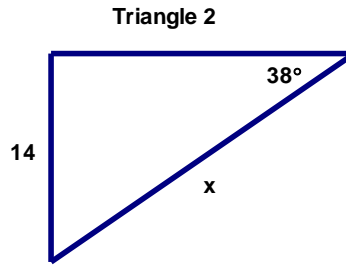
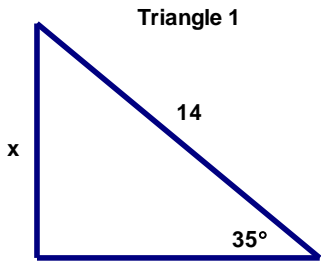


- \_\_\_\_\_ 1. What is the value of  $x$  in Figure 1 if the two triangles are similar?
- \_\_\_\_\_ 2. What is the value of  $x$  in figure 2 given that the horizontal lines are parallel?
- \_\_\_\_\_ 3. What is the value of  $x$  in figure 3 given that the horizontal lines are parallel?
- \_\_\_\_\_ 4. What is the value of  $x$  in figure 4 given that the horizontal lines are parallel?
- \_\_\_\_\_ 5. What is the value of  $x$  in figure 5 given that the horizontal lines are parallel?

## 7-3 Similar Triangles with Perimeter, Altitude, and Medians

- \_\_\_\_\_ 1. If  $\triangle ABC \sim \triangle XYZ$ ,  $AB = 6$ ,  $BC = 10$ ,  $AC = 14$ , and  $XY = 9$ . What is the perimeter of  $\triangle XYZ$ ?
- \_\_\_\_\_ 2. If  $\triangle ABC \sim \triangle XYZ$ ,  $AB = 3$ ,  $BC = 6$ ,  $AC = 9$ , and  $XY = 8$ . What is the perimeter of  $\triangle XYZ$ ?
- \_\_\_\_\_ 3.  $\triangle ABC \sim \triangle XYZ$  with  $\overline{AD}$  being the altitude of  $\triangle ABC$  and  $\overline{XN}$  being the altitude of  $\triangle XYZ$ . If  $AB = 8$ ,  $AD = 10$ ,  $BC = 12$ , and  $YZ = 12$ , what is  $XN$ ?
- \_\_\_\_\_ 4.  $\triangle ABC \sim \triangle DEF$ .  $\overline{BG}$  is a median of  $\triangle ABC$ , and  $\overline{EH}$  is a median of  $\triangle DEF$ . If  $BC = 30$ ,  $BG = 10$ , and  $EF = 15$ , what is  $EH$ ?
- \_\_\_\_\_ 5.  $\triangle STR \sim \triangle XYZ$ . If the perimeter of  $\triangle STR$  is 38 with  $XY = 6$  and  $ST = 12$ , what is the perimeter of  $\triangle XYZ$ ?

# 8-1 SOHCAHTOA

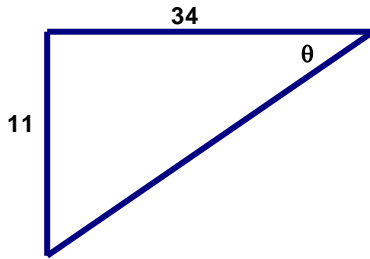


**All triangles above are right triangles.**

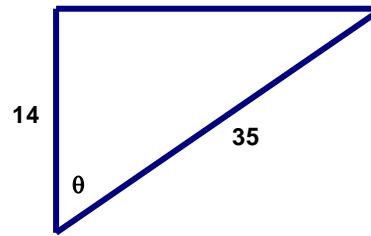
- \_\_\_\_\_ 1. What is the value of  $x$  in Triangle 1 above?
- \_\_\_\_\_ 2. What is the value of  $x$  in Triangle 2 above?
- \_\_\_\_\_ 3. What is the value of  $x$  in Triangle 3 above?
- \_\_\_\_\_ 4. What is the value of  $x$  in Triangle 4 above?
- \_\_\_\_\_ 5. What is the value of  $x$  in Triangle 5 above?

## 8-2 SOHCAHTOA 2 Finding the angle

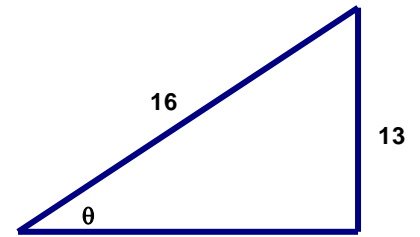
Triangle 1



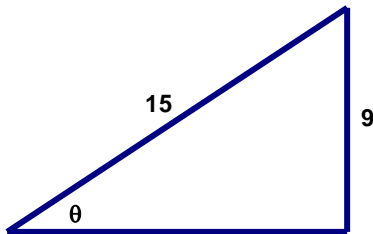
Triangle 2



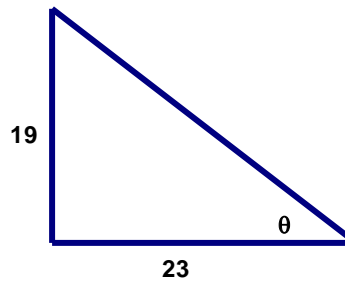
Triangle 3



Triangle 4



Triangle 5



All triangles above are right triangles.

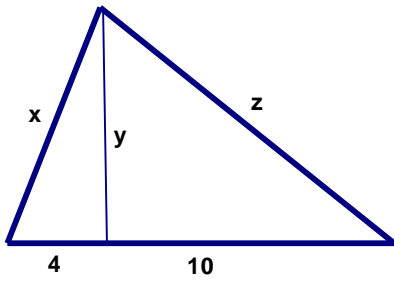
- \_\_\_\_\_ 1. What is the value of  $\theta$  in Triangle 1 above?
- \_\_\_\_\_ 2. What is the value of  $\theta$  in Triangle 2 above?
- \_\_\_\_\_ 3. What is the value of  $\theta$  in Triangle 3 above?
- \_\_\_\_\_ 4. What is the value of  $\theta$  in Triangle 4 above?
- \_\_\_\_\_ 5. What is the value of  $\theta$  in Triangle 5 above?

## 8-3 Geometric Mean of Right Triangles

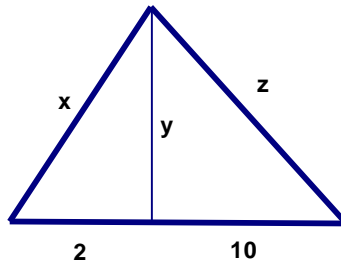
\_\_\_\_\_ 1. Simplify  $\sqrt{40}$  Remember to use a factor tree to help you if you need it.

\_\_\_\_\_ 2. Simplify  $\sqrt{300}$  Remember to use a factor tree to help you if you need it.

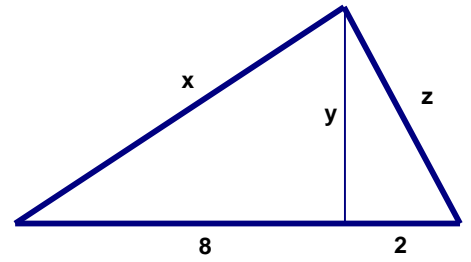
Triangle 1



Triangle 2



Triangle 3



All of the triangles above are right triangles. Find the missing values.

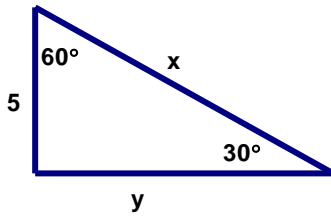
Triangle 1     $x =$  \_\_\_\_\_     $y =$  \_\_\_\_\_     $z =$  \_\_\_\_\_

Triangle 2:     $x =$  \_\_\_\_\_     $y =$  \_\_\_\_\_     $z =$  \_\_\_\_\_

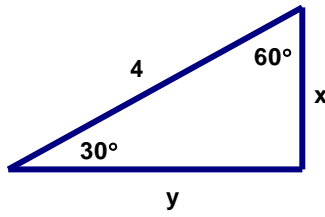
Triangle 3:     $x =$  \_\_\_\_\_     $y =$  \_\_\_\_\_     $z =$  \_\_\_\_\_

# 8-4 30-60-90 and 45° Right Triangles

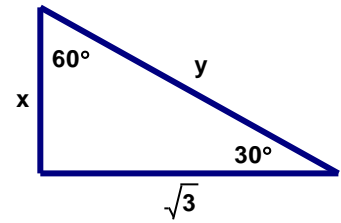
Triangle 1



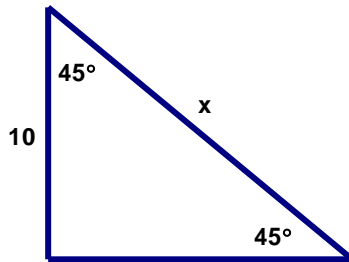
Triangle 2



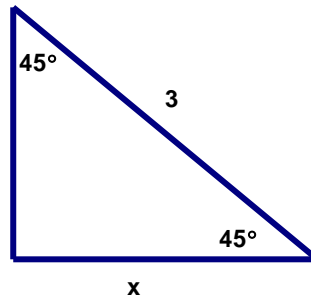
Triangle 3



Triangle 4



Triangle 5



All of the triangles above are right triangles. Find the unknown variables.

1.  $x = \underline{\hspace{2cm}}$        $y = \underline{\hspace{2cm}}$

2.  $x = \underline{\hspace{2cm}}$        $y = \underline{\hspace{2cm}}$

3.  $x = \underline{\hspace{2cm}}$        $y = \underline{\hspace{2cm}}$

4.  $x = \underline{\hspace{2cm}}$

5.  $x = \underline{\hspace{2cm}}$

# 9-1 Circles and Arcs

Figure 1

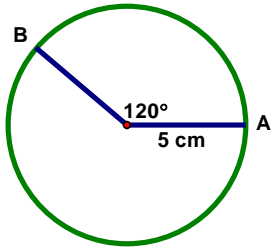


Figure 2

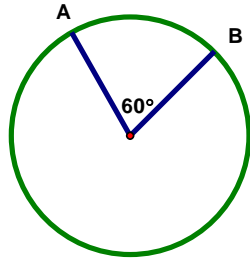


Figure 3

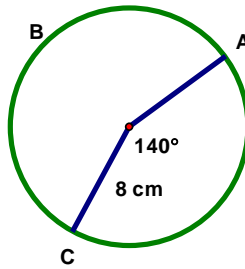


Figure 4

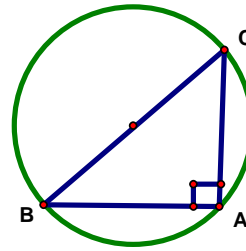
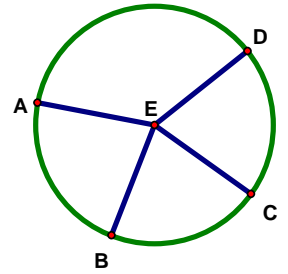
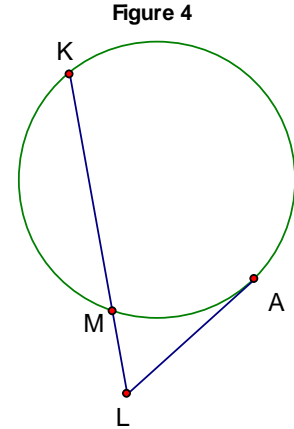
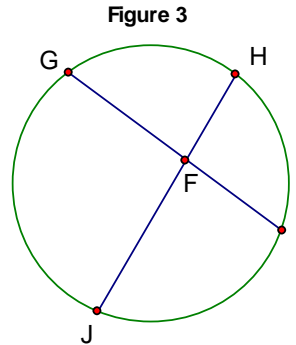
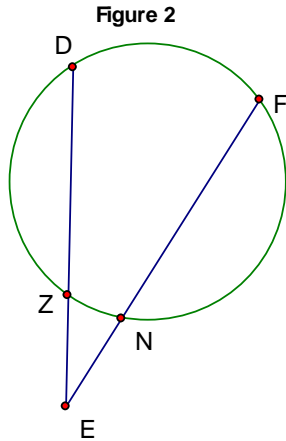
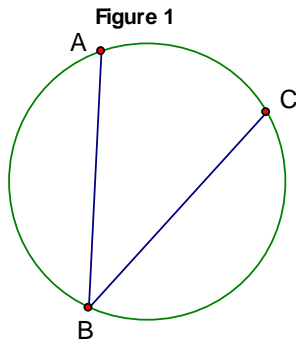


Figure 5



- \_\_\_\_\_ 1. What is the measurement of  $AB$  in Figure 1 above?
- \_\_\_\_\_ 2. If  $AB = 6$  cm in Figure 2 above, what is the circumference of the circle?
- \_\_\_\_\_ 3. What is the measurement of major  $ABC$  in Figure 3 above?
- \_\_\_\_\_ 4. In Figure 4,  $AB = 5$  cm and  $AC = 12$  cm.  
What is the circumference of the circle rounded to the nearest tenth?
- \_\_\_\_\_ 5. In Figure 5,  $\angle AED = 12x$ ,  $\angle AEB = 8x$ ,  $\angle CED = 8x$ , and  $\angle CEB = 4x$ .  
What is the value of  $x$ ?





## 9-2 Angles and Arcs

- \_\_\_\_\_ 1. If in Figure 1,  $AC = 80^\circ$ , what is  $\angle B$ ?
- \_\_\_\_\_ 2. If in Figure 2, and  $ZN = 40^\circ$ , what is  $\angle E$ ?
- \_\_\_\_\_ 3. If in Figure 3,  $GH = 130^\circ$  and  $JI = 100^\circ$ , what is  $\angle JFI$ ?
- \_\_\_\_\_ 4. If in Figure 4,  $KA = 160^\circ$  and  $MA = 20^\circ$ , what is  $\angle L$ ?
- \_\_\_\_\_ 5. If in Figure 4,  $KA = 150^\circ$  and  $KM = 130^\circ$ , what is  $\angle L$ ?

## 9-3 Angles and Arcs 2

Using the same Figures above, answer these questions.

- \_\_\_\_\_ 1. If in Figure 1,  $AB = 100^\circ$  and  $CB = 170^\circ$  what is  $\angle B$ ?
- \_\_\_\_\_ 2. If in Figure 2,  $DF = 100^\circ$  and  $\angle E = 20^\circ$ , what is  $ZN$ ?
- \_\_\_\_\_ 3. If in Figure 3,  $GH = 130^\circ$  and  $\angle JFI = 80^\circ$ , what is  $JI$ ?
- \_\_\_\_\_ 4. If in Figure 4,  $KA = 160^\circ$  and  $\angle L = 62^\circ$ , what is  $MA$ ?
- \_\_\_\_\_ 5. If in Figure 4,  $KA = 160^\circ$  and  $\angle L = 48^\circ$ , what is  $KM$ ?

# 9-4 Cord Lengths

Figure 1

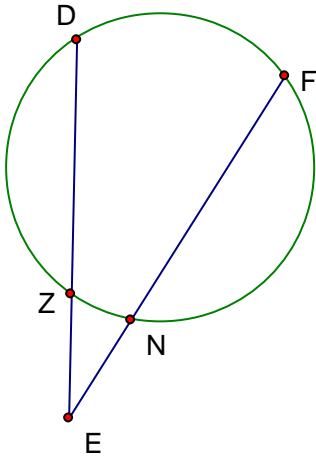


Figure 2

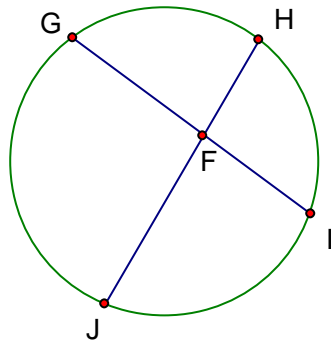
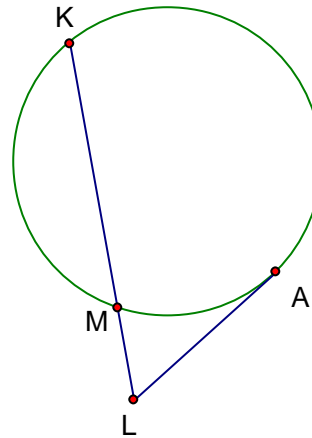


Figure 3



\_\_\_\_\_ 1. If in Figure 1,  $ZE = 4$ ,  $EN = 6$ , and  $NF = 8$ , what is  $DZ$ ?

\_\_\_\_\_ 2. If in Figure 1,  $DZ = 8$ ,  $ZE = 2$ , and  $EN = 3$ , what is  $NF$ ?

\_\_\_\_\_ 3. If in Figure 2,  $JF = 8$ ,  $FH = 4$ , and  $FI = 6$ , what is  $GF$ ?

\_\_\_\_\_ 4. If in Figure 2,  $JF = 10$ ,  $JH = 18$ , and  $GF = 6$ , what is  $FI$ ?

\_\_\_\_\_ 5. If in Figure 3,  $KM = 8$  and  $ML = 4$ , what is  $LA$ ?

## 10-1 Area of Irregular shapes

Figure 1

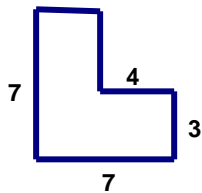


Figure 2

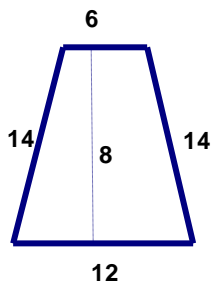


Figure 3

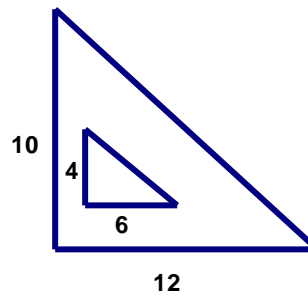


Figure 4

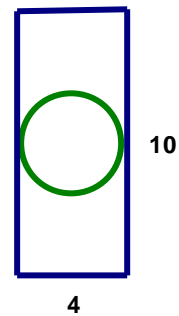
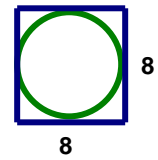


Figure 8



- \_\_\_\_\_ 1. Find the area of Figure 1 above.
- \_\_\_\_\_ 2. Find the area of Figure 2 above.
- \_\_\_\_\_ 2. Find the area between the small triangle and large one in Figure 3 above.
- \_\_\_\_\_ 4. Find the area between the rectangle and circle in Figure 4 above.
- \_\_\_\_\_ 5. Find the area between the square and the circle in Figure 5 above.

## 10-2 Three dimensional objects

- \_\_\_\_\_ 1. What is the total surface area of a cylinder with a radius of 3 inches and a height of 6 inches?
- \_\_\_\_\_ 2. What is the volume of a sphere that has a radius of 6 cm?
- \_\_\_\_\_ 3. What is the volume of a pyramid that has a height of 10 cm and a square base with each side being 5 cm in length?
- \_\_\_\_\_ 4. How much volume is left in a 10 cm cube if a 9 cm cube is placed inside the 9 cm cube?
- \_\_\_\_\_ 5. How much volume is left inside a 6 cm sphere if a 3 cm sphere is placed inside the 6 cm sphere?

# 11-1 Circles

1. Consider the circle  $(x - 4)^2 + (y - 2)^2 = 25$       Center = \_\_\_\_\_      Radius = \_\_\_\_\_
2. Consider the circle  $x^2 + (y - 2)^2 = 4$       Center = \_\_\_\_\_      Radius = \_\_\_\_\_
3. Consider the circle  $(x + 1)^2 + (y - 3)^2 = 64$       Center = \_\_\_\_\_      Radius = \_\_\_\_\_

**Give the equation of the circle that has the given center and given radius.**

4. Center = (2, 5)      Radius = 3      Equation = \_\_\_\_\_
5. Center = (-1, 2)      Radius = 4      Equation = \_\_\_\_\_

# 11-2 Nets

Tell if the given nets can be folded into a cube. Answer Yes or No.

Figure 1

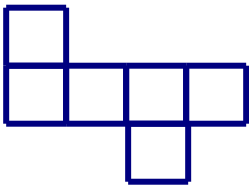


Figure 2

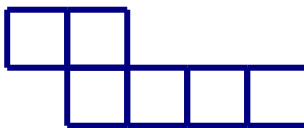


Figure 3

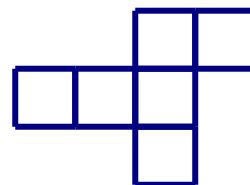


Figure 4

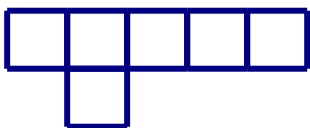


Figure 5

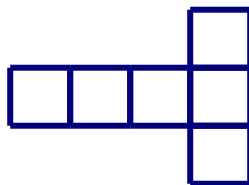
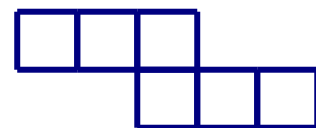


Figure 6



- \_\_\_\_\_ 1.      Figure 1
- \_\_\_\_\_ 3.      Figure 3
- \_\_\_\_\_ 5.      Figure 5

- \_\_\_\_\_ 2.      Figure 2
- \_\_\_\_\_ 4.      Figure 4
- \_\_\_\_\_ 6.      Figure 6

## 11-3 Symmetry

- \_\_\_\_\_ 1. If  $A = (3, -2)$  and it is reflected over the  $y$ -axis, where will it land?
- \_\_\_\_\_ 2. If  $A = (-2, -8)$  and it is reflected over the line  $x = 2$ , where will it land?
- \_\_\_\_\_ 3. If  $A = (6, -8)$  and it is reflected over the  $x$ -axis, where will it land?
- \_\_\_\_\_ 4. If  $A = (10, -6)$  and it is reflected over the line  $y = -4$ , where will it land?
- \_\_\_\_\_ 5. Does a rectangle have line symmetry, point symmetry, or both?