

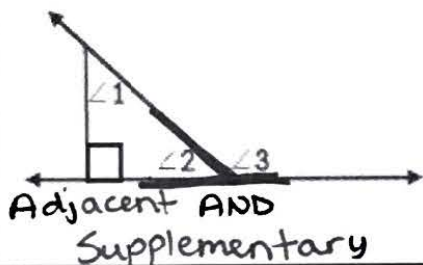
# ANGLES AND TRIANGLES UNIT STUDY GUIDE

Solve each of the problems below. These represent the types of questions on your test. Be sure to ask questions if you need more help with a topic.

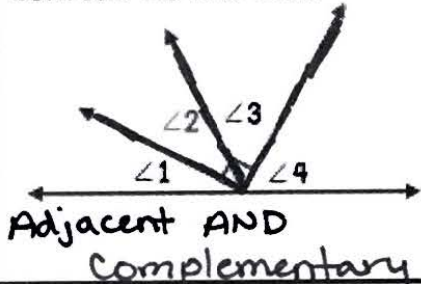
## I CAN CLASSIFY ANGLE RELATIONSHIPS.

7.G.5

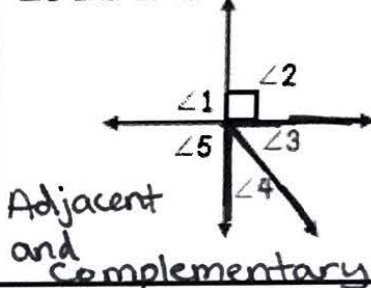
1. The relationship between  $\angle 2$  and  $\angle 3$ ...



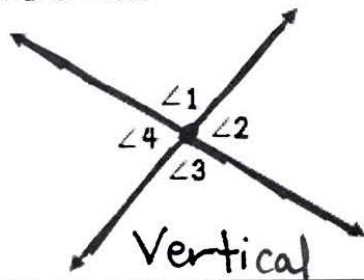
2. The relationship between  $\angle 2$  and  $\angle 3$ ...



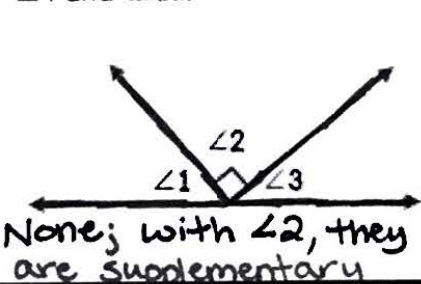
3. The relationship between  $\angle 3$  and  $\angle 4$ ...



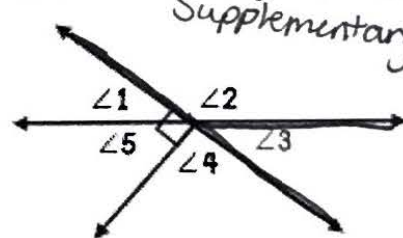
4. The relationship between  $\angle 1$  and  $\angle 3$ ...



5. The relationship between  $\angle 1$  and  $\angle 3$ ...



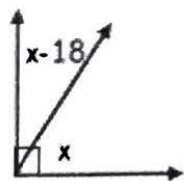
6. The relationship between  $\angle 2$  and  $\angle 3$ ... Adjacent and Supplementary



## I CAN USE COMPLEMENTARY & SUPPLEMENTARY ANGLES TO WRITE & SOLVE EQUATIONS.

7.G.5

7.

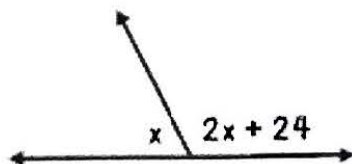


Equation:  $x + x - 18 = 90$

$$\begin{array}{r} 2x - 18 = 90 \\ +18 \quad +18 \\ \hline 2x = 108 \\ \frac{2x}{2} = \frac{108}{2} \\ x = 54 \end{array}$$

$\angle$  measures:  $54^\circ$  and  $36^\circ$

8.



Equation:  $x + 2x + 24 = 180$

$$\begin{array}{r} 3x + 24 = 180 \\ -24 \quad -24 \\ \hline 3x = 156 \\ \frac{3x}{3} = \frac{156}{3} \\ x = 52 \end{array}$$

$\angle$  measures:  $52^\circ$  and  $128^\circ$

9. Two angles are supplementary. The first angle is  $4x$  degrees. The second angle is  $(2x+6)$  degrees. Determine the measure of each angle.

Equation:  $4x + 2x + 6 = 180$

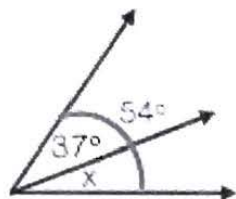
$$\begin{array}{r} 6x + 6 = 180 \\ -6 \quad -6 \\ \hline 6x = 174 \\ \frac{6x}{6} = \frac{174}{6} \\ x = 29 \end{array}$$

$\angle$  measures:  $116^\circ$  and  $64^\circ$

I CAN USE VERTICAL AND ADJACENT ANGLES TO WRITE AND SOLVE EQUATIONS.

7.G.5

10.

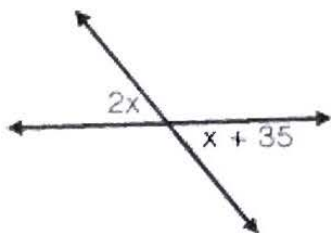


Equation:  $x + 37 = 54$   
 $\begin{array}{r} x + 37 = 54 \\ -37 \quad -37 \\ \hline x = 17 \end{array}$

$x = 17$

∠ measures:  $17^\circ$  and  $37^\circ$

11.

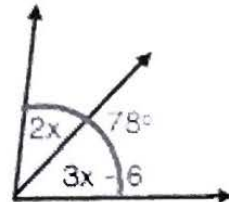


Equation:  $2x = x + 35$   
 $\begin{array}{r} 2x = x + 35 \\ -x \quad -x \\ \hline x = 35 \end{array}$

$x = 35$

∠ measures:  $70^\circ$

12.



Equation:  $2x + 3x - 6 = 78$   
 $\begin{array}{r} 2x + 3x - 6 = 78 \\ 5x - 6 = 78 \\ +6 \quad +6 \\ \hline 5x = 84 \\ \frac{5x}{5} = \frac{84}{5} \end{array}$

$x = 16.8$

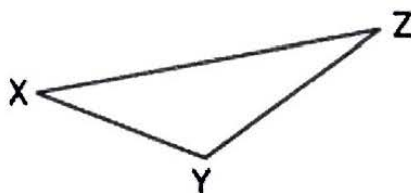
∠ measures:  $33.6^\circ$  and  $44.4^\circ$

I CAN APPLY KNOWLEDGE OF TRIANGLES.

7.G.5

13. Use the triangle at right to answer the questions.

- a. angle XYZ corresponds with side length XZ
- b. angle ZXY corresponds with side length ZY
- c. angle YZX corresponds with side length YX



14. Find the missing angle measure in each triangle below. Total degrees in any  $\Delta = 180^\circ$

**A**

$88 + 33 + x = 180$   
 $121 + x = 180$   
 $-121 \quad -121$   
 $x = 59^\circ$

**B**

$29.4 + 79 + x = 180$   
 $108.4 + x = 180$   
 $-108.4 \quad -108.4$   
 $x = 71.6^\circ$

**C**

$40 + 40 + x = 180$   
 $80 + x = 180$   
 $-80 \quad -80$   
 $x = 100^\circ$

15. Which three lengths could be the lengths of the sides of a triangle?

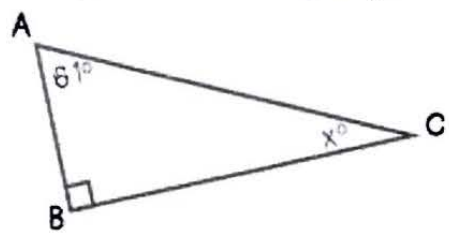
- A. 12 cm, 5 cm, 17 cm
- B. 10 cm, 15 cm, 24 cm
- C. 9 cm, 22 cm, 11 cm
- D. 21 cm, 7 cm, 6 cm

(Add the two smaller sides. If the sum is greater than the third side, it is a  $\Delta$ .)



# I CAN CLASSIFY TRIANGLES.

16. Determine the missing value,  $x$ . Then, classify the triangle by side and by angle measure.

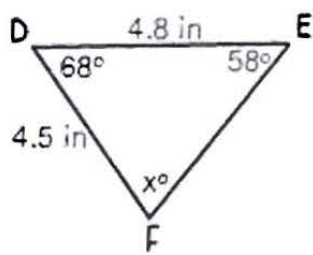


$x: 29^\circ$

by side: Scalene  $\Delta$

by angle measure: Right  $\Delta$

17. Determine the missing value,  $x$ . Then, classify the triangle by side and by angle measure.

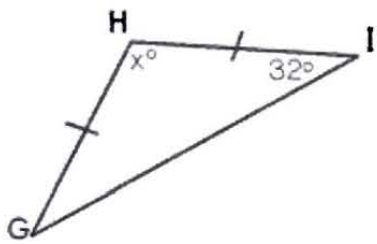


$x: 54^\circ$

by side: Scalene  $\Delta$

by angle measure: Acute  $\Delta$

18. Determine the missing value,  $x$ . Then, classify the triangle by side and by angle measure.

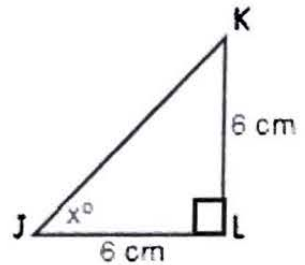


$x: 116^\circ$

by side: Isosceles  $\Delta$

by angle measure: Obtuse  $\Delta$

19. Determine the missing value,  $x$ . Then, classify the triangle by side and by angle measure.



$x: 45^\circ$

by side: Isosceles  $\Delta$

by angle measure: Right  $\Delta$

$$\begin{array}{r}
 16. \quad 90 + 61 + x = 180 \\
 151 + x = 180 \\
 -151 \qquad \qquad -151 \\
 \hline
 x = 29^\circ
 \end{array}$$

$$\begin{array}{r}
 17. \quad x + 68 + 58 = 180 \\
 x + 126 = 180 \\
 -126 \quad -126 \\
 \hline
 x = 54^\circ
 \end{array}$$

$$\begin{array}{r}
 18. \quad 32 + 32 + x = 180 \\
 64 + x = 180 \\
 -64 \qquad \qquad -64 \\
 \hline
 x = 116^\circ
 \end{array}$$

$$\begin{array}{r}
 19. \quad x + x + 90 = 180 \\
 2x + 90 = 180 \\
 -90 \quad -90 \\
 \hline
 \frac{2x}{2} = \frac{90}{2} \\
 x = 45^\circ
 \end{array}$$