

2, 2, 3

Key

Name _____

Study Guide

Geometry Mid-Test

Possible:

- Name 3 lengths that can make a triangle. 2, 2, 3 Why do these work? All side combinations are greater than the other. Example: $2+2 > 3$, $2+3 > 2$ and $2+3 > 2$.
- Name 3 lengths that will not make up a triangle. 3, 4, 7 Why don't these work? At least one side combo. doesn't work $\rightarrow 3+4 > 7$ (not greater).

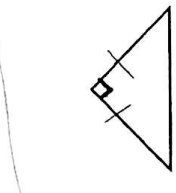
- If an isosceles triangle has only (1) 30 degree angle, what are the measures of the other angles? Isosceles triangles have 2 sides and 2 angles that are congruent (same). That means: $180 - 30 = 150$ $150 \div 2 = 75$. Each of the other 2 angles is 75° .



$$\begin{array}{r|l} x+5 > 7 & x+7 > 5 \\ -5 & -7 \\ \hline x > 2 & x > -2 \end{array} \quad \begin{array}{l} \text{or} \\ x < 12 \end{array}$$

can't use the neg. solution

- Name the triangle by angle and by side.

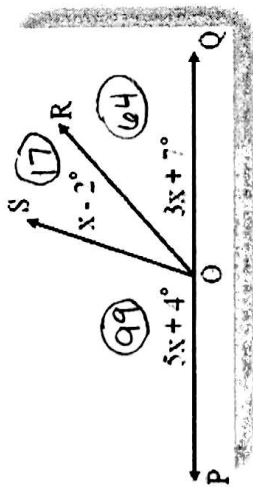


Right, isosceles.

Now put the X in the middle for the range of values the third leg could be:
 $2 < X < 12$

7. What is the value of x in the figure below? $x = 19$

8. What is $m\angle POS$? $m\angle SOR$? $m\angle ROQ$?



$m\angle POS$

$$5x + 4$$

$$5(19) + 4 = 99$$

$m\angle SOR$

$$x - 2$$

$$19 - 2 = 17$$

$m\angle ROQ$

$$3x + 7$$

$$3(19) + 7 = 64$$

Add up the 3 angle measures and set equal to 180.

$$5x + 4 + x - 2 + 3x + 7 = 180$$

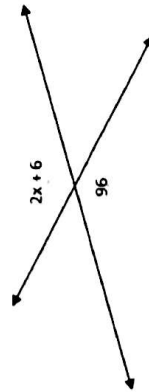
$$9x + 9 = 180$$

$$9x + 9 = 180$$

$$\frac{9x}{9} = \frac{171}{9}$$

$$x = 19$$

9. What is the value of x in the figure below?



These angles are vertical.

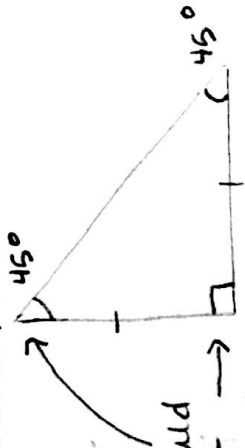
Set them equal to each other.

$$2x + 6 = 96$$

$$2x = 90$$

$$x = 45$$

10. Using a protractor and a ruler, draw an isosceles triangle with only (1) 90 degree angle.



You would construct the 90° first, then one that is 45. The third will be 45 too.

If one angle is 90°, then the other 2 have to be 45° and 45° since isosceles triangles have 2 sides and 2 angles congruent.