

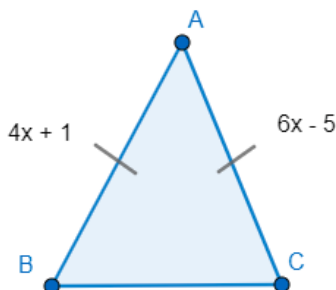
**Find the answers to the practice assignment on PAGE 3 below.**

Fill in the blanks with the appropriate word(s):

1. A \_\_\_\_\_ triangle has no equal sides.
2. An \_\_\_\_\_ triangle has 2 equal sides.
3. An \_\_\_\_\_ triangle has 3 equal sides.
4. The sum of the three angles in a triangle is always \_\_\_\_\_ degrees.
5. The congruent sides in an isosceles triangle are called the \_\_\_\_\_. The third side is called the \_\_\_\_\_.
6. The congruent angles in an isosceles triangle are called the \_\_\_\_\_ angles. The third angle is called the \_\_\_\_\_.
7. You can use the \_\_\_\_\_ to find the missing side of a right triangle. The formula is \_\_\_\_\_, where a and b are the \_\_\_\_\_ and c is the \_\_\_\_\_.
8. The hypotenuse is the \_\_\_\_\_ side of a right triangle. It is always the side across from the \_\_\_\_\_.

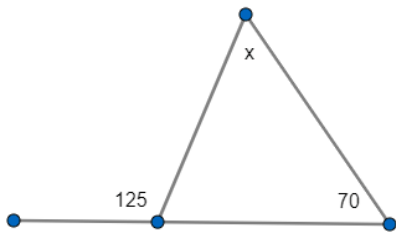
Problems:

9. A triangle has angles that measure  $85^\circ$ ,  $46^\circ$ , and  $(9 + 4x)^\circ$ . Solve for x.
10. Triangle ABC has angles  $A = (x + 49)$ ,  $B = (x + 77)$ , and  $C = 74$ . Find the measure of angle A.
11. An angle of an equilateral triangle can be expressed as  $(9x + 6)$ . Find x.
12. The base angles of an isosceles triangle are represented by  $(5x + 10)$  and  $50^\circ$ . Find x.
13. A base angle of an isosceles triangle measures 65 degrees and the vertex can be represented by  $(x + 59)$ . Find x.
14. Find x.



15. A right triangle has legs measuring 12 and 16. Find the length of the hypotenuse.
16. A right triangle has a leg measuring 10 and a hypotenuse of 26. Find the length of the other leg.

17. Solve for  $x$ .



18. An equilateral triangle has a perimeter of 21 and a side length of  $2x + 3$ . Find  $x$ .

19. An isosceles triangle has a perimeter of 23 and a base with length 9. Find the length of each leg.

Answers:

1. scalene
2. isosceles
3. equilateral
4. 180
5. legs; base
6. base; vertex
7. Pythagorean Theorem;  $a^2 + b^2 = c^2$ ; legs; hypotenuse
8. longest; right angle

9.  $x = 10$   $85 + 46 + 9 + 4x = 180^\circ$

$$\begin{array}{r} 140 + 4x = 180 \\ -140 \quad -140 \\ \hline 4x = 40 \\ \frac{4x}{4} = \frac{40}{4} \end{array}$$

$$\boxed{x = 10}$$

10.  $A = 39$

$$\begin{array}{r} m\angle A + m\angle B + m\angle C = 180 \\ x + 49 + x + 77 + 74 = 180 \\ 2x + 200 = 180 \\ -200 \quad -200 \\ \hline 2x = -20 \\ \frac{2x}{2} = \frac{-20}{2} \quad x = -10 \end{array}$$

$$\begin{array}{r} m\angle A = x + 49 \\ = -10 + 49 \\ = \boxed{39} \end{array}$$

11.  $x = 6$

In an equilateral  $\triangle$ , all angles measure  $60^\circ$

$$\begin{array}{r} 9x + 6 = 60 \\ -6 \quad -6 \\ \hline 9x = 54 \\ \frac{9x}{9} = \frac{54}{9} \quad \boxed{x = 6} \end{array}$$

12.  $x = 8$

base angles are congruent (equal)

$$\begin{array}{r} 5x + 16 = 50 \\ -16 \quad -16 \\ \hline 5x = 34 \\ \frac{5x}{5} = \frac{34}{5} \quad \boxed{x = 8} \end{array}$$

13.  $x = -9$

base  $\angle$  + base  $\angle$  + vertex  $\angle = 180^\circ$

$$65 + 65 + x + 59 = 180$$

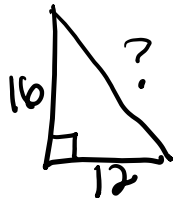
$$\begin{array}{r} x + 189 = 180 \\ -189 \quad -189 \\ \hline \end{array}$$

$$\boxed{x = -9}$$

14.  $x = 3$

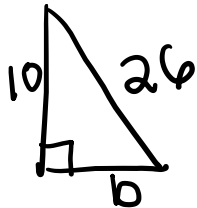
$$\begin{array}{r} 4x+1 = 6x-5 \\ -4x \quad -4x \\ \hline 1 = 2x-5 \\ +5 \quad +5 \\ \hline 6 = 2x \\ \frac{6}{2} = \frac{2x}{2} \\ \boxed{3 = x} \end{array}$$

15. 20



$$\begin{array}{l} 12^2 + 16^2 = c^2 \\ 144 + 256 = c^2 \\ \hline 400 = c^2 \\ \sqrt{400} = \sqrt{c^2} \\ \boxed{c = 20} \end{array}$$

16. 24



$$\begin{array}{l} 10^2 + b^2 = 26^2 \\ 100 + b^2 = 676 \\ -100 \quad -100 \\ \hline b^2 = 576 \\ \sqrt{b^2} = \sqrt{576} \\ \boxed{b = 24} \end{array}$$

17.  $x = 55$

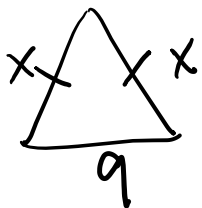
$$\begin{array}{r} x+70 = 125 \\ -70 \quad -70 \\ \hline \boxed{x = 55} \end{array}$$

18.  $x = 2$

Equilateral  $\triangle$  all sides equal Perimeter = 21

$$\begin{array}{l} 3(2x+3) = 21 \\ 6x+9 = 21 \\ -9 \quad -9 \\ \hline 6x = 12 \\ \frac{6x}{6} = \frac{12}{6} \\ \boxed{x = 2} \end{array}$$

19.  $x = 7$



$P = 23$

$$\begin{array}{l} x+x+9 = 23 \\ 2x+9 = 23 \\ -9 \quad -9 \\ \hline 2x = 14 \\ \frac{2x}{2} = \frac{14}{2} \\ \boxed{x = 7} \end{array}$$