

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

10 cm, 15 cm, 24 cm
 $10 + 15 > 24$ ✓
 $10 + 24 > 15$ ✓ Yes Δ
 $15 + 24 > 10$ ✓

12 cm, 5 cm, 17 cm
 $12 + 5 > 17$ X No Δ

9 cm, 22 cm, 11 cm
 $9 + 22 > 11$
 $11 + 22 > 9$ No Δ
 $9 + 11 > 22$

21 cm, 7 cm, 6 cm
 $6 + 7 > 21$ NO Δ

Two sides of a triangle have lengths 4 yd and 7 yd. Describe the possible lengths of the third side.

$$4, 7, x$$

$$4+7 > x$$

$$11 > x$$

$$4+x > 7$$

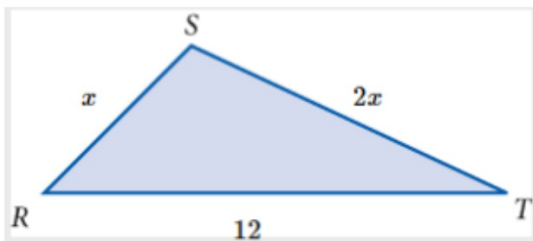
$$x > 3$$

$$x+7 > 4$$

$$~~x > -3~~$$

$$3 < x < 11$$

Use the three inequalities, which must be true based on the sides of the triangle, to write your answer



$$x + 2x > 12$$

$$3x > 12$$

$$x > 4$$

$$x + 12 > 2x$$

$$-x \quad -x$$

$$12 > x$$

$$2x + 12 > x$$

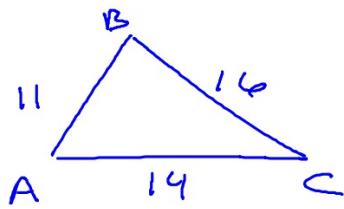
$$-x \quad -x$$

$$x + 12 > 0$$

$$~~x > -12~~$$

$$4 < x < 12$$

If $AB = 11$, $BC = 16$, and $CA = 14$, list the angles of $\triangle ABC$ in order from smallest to largest.



$\angle C, \angle B, \angle A$

List the angles of triangle ABC from smallest to largest.

A(3,3), B(1, -2), and C(-3, 2)

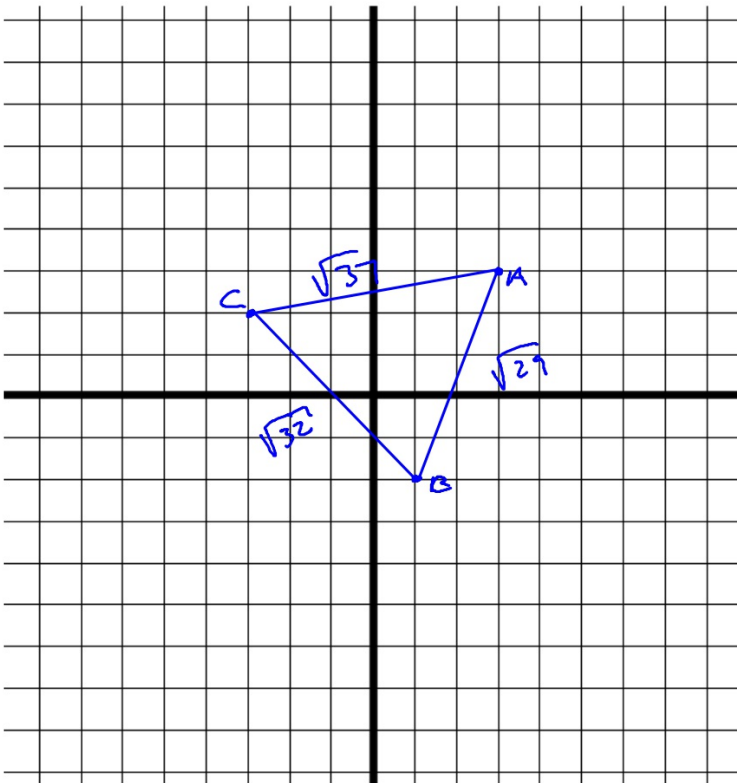
$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

$$\begin{aligned} AB &= \sqrt{(3-1)^2 + (3+2)^2} \\ &= \sqrt{2^2 + 5^2} \\ &= \sqrt{29} \end{aligned}$$

$$\begin{aligned} BC &= \sqrt{(1+3)^2 + (-2-2)^2} \\ &= \sqrt{4^2 + (-4)^2} \\ &= \sqrt{16+16} = \sqrt{32} \end{aligned}$$

$$\begin{aligned} AC &= \sqrt{(3+3)^2 + (3-2)^2} \\ &= \sqrt{6^2 + 1^2} = \sqrt{37} \end{aligned}$$

$\angle C, \angle A, \angle B$



Solve each proportion

$$\frac{3}{7} = \frac{x}{10}$$

$$7x = 30$$

$$x = \frac{30}{7}$$

$$x = 4.29$$

$$\frac{x+5}{6} = \frac{x-3}{4}$$

$$4(x-3) = 6(x+5)$$

$$4x-12 = 6x+30$$

$$2x-18 = 20$$

$$2x = 38$$

$$x = 19$$

$$\frac{6}{x} = \frac{x-3}{3}$$

$$x(x-3) = 18$$

$$x^2 - 3x = 18$$

$$x^2 - 3x - 18 = 0$$

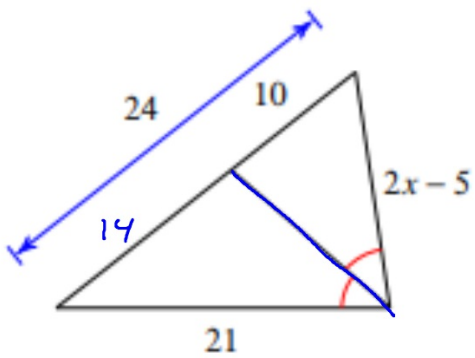
$$(x-6)(x+3) = 0$$

$$x-6=0 \quad x+3=0$$

$$x=6 \quad x=-3$$

$$\begin{array}{r} -18 \\ \underline{-6 \cdot 3} \\ -3 \cdot 6 \\ -2 \cdot 9 \\ -9 \cdot 2 \end{array}$$

Solve for x



$$\frac{21}{14} = \frac{2x-5}{10}$$

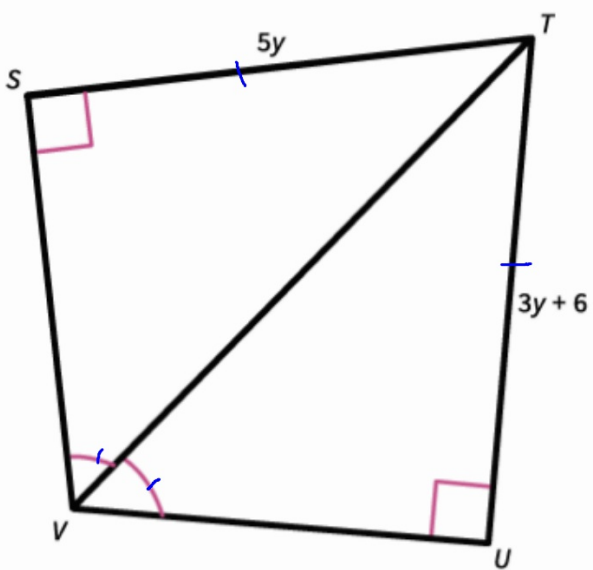
$$210 = 14(2x-5)$$

$$210 = 28x - 70$$

$$280 = 28x$$

$$x = 10$$

Look at the figure. Find y .

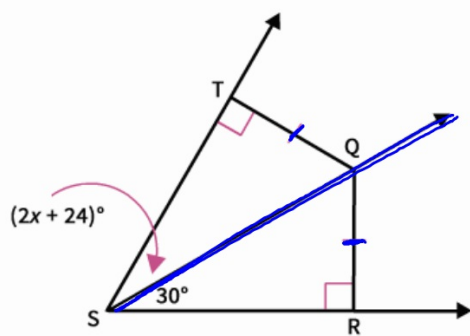


$$5y = 3y + 6$$

$$2y = 6$$

$$y = 3$$

Q is equidistant from the sides of $\angle TSR$. Find the value of x .

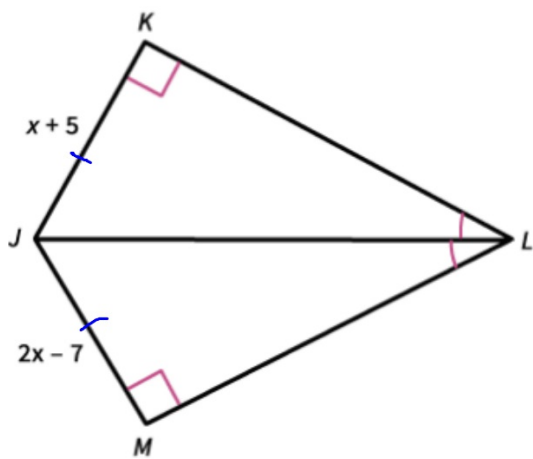


$$2x + 24 = 30$$

$$2x = 6$$

$$x = 3$$

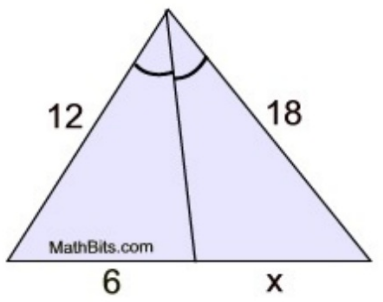
Solve for x



$$x+5=2x-7$$

$$5=x-7$$

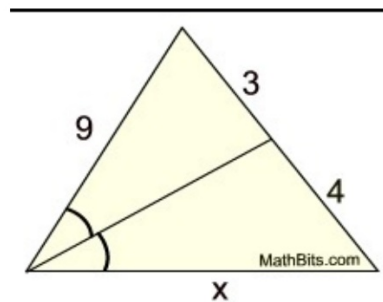
$$x=12$$



$$\frac{6}{12} = \frac{x}{18}$$

$$12x = 108$$

$$x = 9$$

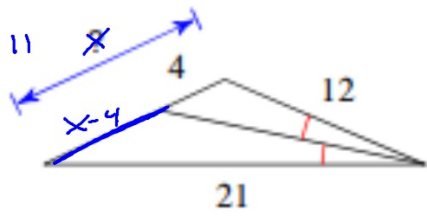


$$\frac{3}{9} = \frac{4}{x}$$

$$3x = 36$$

$$x = 12$$

$$\frac{3}{9} = \frac{4}{x}$$



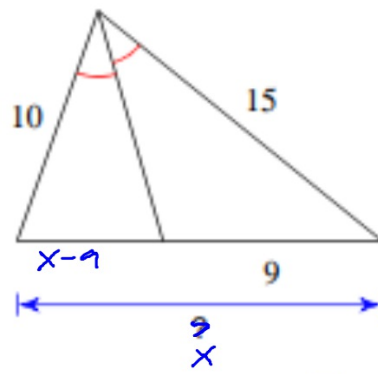
$$\frac{21}{x-4} = \frac{12}{4}$$

$$12(x-4) = 84$$

$$12x - 48 = 84$$

$$12x = 132$$

$$x = 11$$



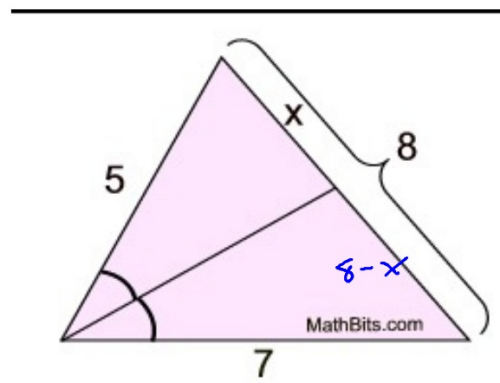
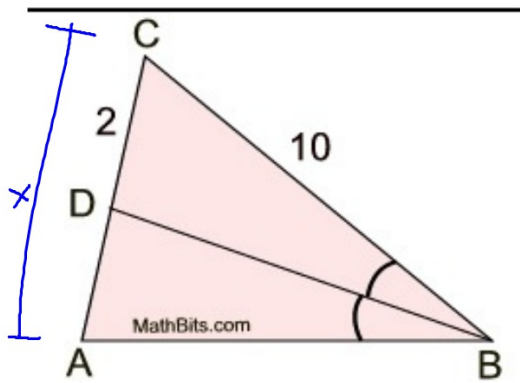
$$\frac{10}{x-9} = \frac{15}{9}$$

$$90 = 15(x-9)$$

$$90 = 15x - 135$$

$$225 = 15x$$

$$x = 15$$



$$\frac{x}{5} = \frac{8-x}{7}$$

$$7x = 5(8-x)$$

$$7x = 40 - 5x$$

$$12x = 40$$

$$x = \frac{40}{12} = \frac{10}{3} \approx 3.3$$