



$$AB = 2x + 8 \text{ and } BC = 6x - 28$$

$$(2x + 8) + (6x - 28)$$

$$2x + 8 + 6x - 28$$

$$8x - 20$$

$$2x + 8 = 6x - 28$$

$$\cancel{2x} + 36 = 6x$$

$$\cancel{-2x} \quad \quad \quad \cancel{-2x}$$

$$\frac{36}{4} = \frac{4x}{4}$$

$$\boxed{x = 9}$$

$$AB + BC$$

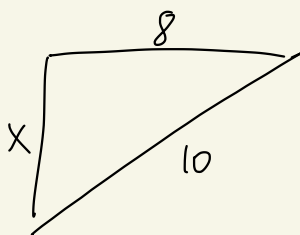
$$(2x + 8) + (6x - 28)$$

$$(2(9) + 8) + (6(9) - 28)$$

$$(18 + 8) + (54 - 28)$$

$$26 + 26$$

$$\boxed{52}$$



$$x^2 + 8^2 = 10^2$$

$$x^2 + 64 = 100$$

$$\cancel{-64} \quad \quad \quad \cancel{-64}$$

$$x^2 = 36$$

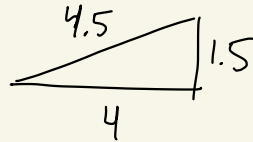
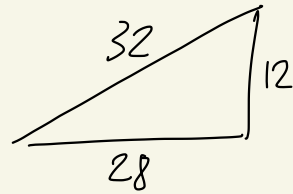
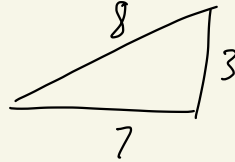
$$\boxed{x = 6}$$

$$\begin{array}{r} 6x + 175^\circ = 3x + 127^\circ \\ -3x \quad \quad -3x \end{array}$$

$$\begin{array}{r} 3x + 175^\circ = 127^\circ \\ -175 \quad -175 \end{array}$$

$$\frac{3x}{3} = \frac{-48}{3}$$

$$\boxed{x = -16}$$



$$\begin{array}{r} 6x + 2 = 5x + 3 \\ -5x - 3 \quad -5x - 3 \end{array}$$

$$\begin{array}{r} x - 1 = 0 \\ +1 \end{array}$$

$$x = 1$$

$$\begin{array}{r} (6(1) + 2) + (5(1) + 3) \\ 6 + 2 \quad \quad 5 + 3 \\ 8 \quad \quad + \quad 8 \end{array}$$

$$\boxed{16}$$

$$(6x - 12) + (3x + 30) = 90$$

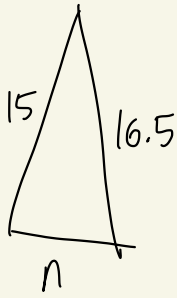
$$6x - 12 + 3x + 30 = 90$$

$$\begin{array}{r} 9x + 18 = 90 \\ -18 \quad -18 \end{array}$$

$$\frac{9x}{9} = \frac{72}{9}$$

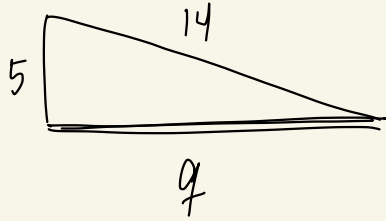
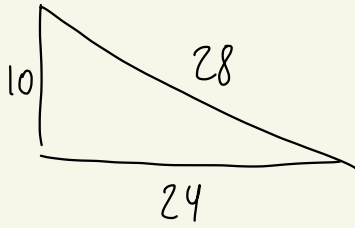
$$x = 8$$

$$6x - 12 = 6(8) - 12 = 48 - 12 = \boxed{36^\circ}$$



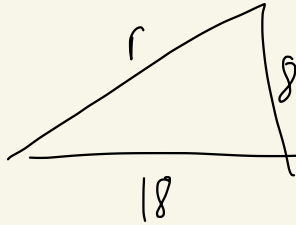
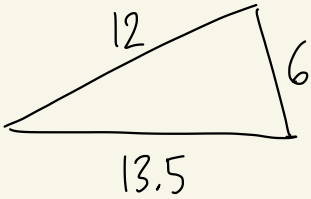
$$\frac{5}{2.5} = \frac{15}{n}$$

$$\boxed{n = 7.5}$$

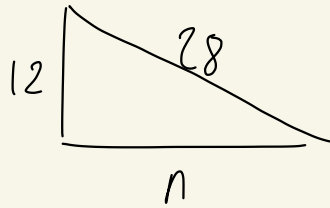
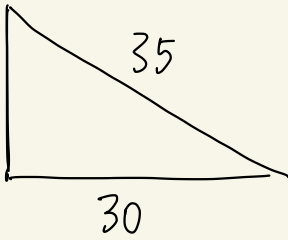


$$\frac{28}{24} = \frac{14}{q}$$

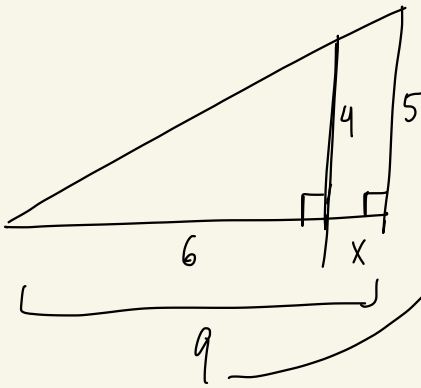
$$\boxed{q = 12}$$



$$\frac{12}{13.5} = \frac{r}{18}, \boxed{r = 16}$$



$$\frac{35}{30} = \frac{28}{n} \quad \boxed{n=24}$$

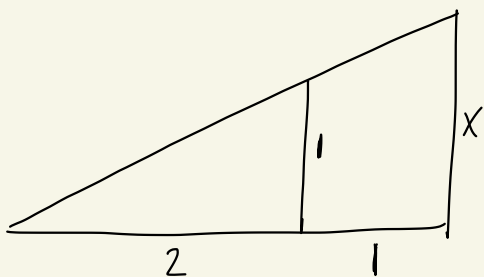


$$\frac{6}{4} = \frac{4}{5}$$

$$6 \cdot 5 = 30$$

$$30/4 = \frac{15}{2}$$

$$\frac{15}{2} - \frac{6}{1} = \frac{15}{2} - \frac{12}{2} = \boxed{\frac{3}{2}}$$

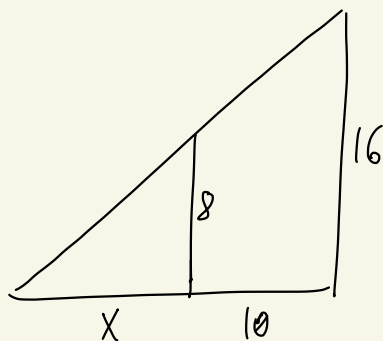


$$x = \frac{3}{2}$$

$$\frac{2}{1} = \frac{2+1}{x} \Rightarrow \frac{2}{1} = \frac{3}{x}$$

$$3 \cdot 1 = 3$$

$$3/2 = \frac{3}{2}$$



$$\frac{x}{8} = \frac{x+10}{16}$$

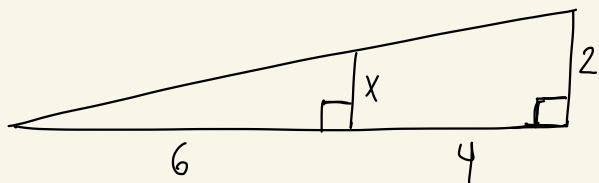
$$16 \cdot x = 8(x+10)$$

$$16x = 8x + 80$$

$$\begin{array}{r} 16x = 8x + 80 \\ -8x \quad -8x \\ \hline 8x = 80 \end{array}$$

$$\frac{8x}{8} = \frac{80}{8}$$

$$x = 10$$



$$\frac{x}{6} = \frac{2}{6+4} = \frac{x}{6} = \frac{2}{10} \quad 2 \cdot 6 = 12$$

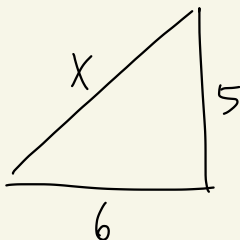
$$12/10 = \boxed{6/5}$$

$$\begin{array}{r} 6x + 34 = 8x + 14 \\ -6x - 34 \quad -6x - 34 \\ \hline \end{array}$$

$$\begin{array}{r} 0 = 2x - 20 \\ +20 \quad +20 \end{array}$$

$$\frac{20}{2} = \frac{2x}{2}$$

$$\boxed{x = 10}$$



$$6^2 + 5^2 = x^2$$

$$36 + 25 = x^2$$

$$61 = x^2$$

$$\boxed{x = \sqrt{61}}$$

$$\begin{array}{r} 8x - 5 = 7x + 3 \\ -7x - 3 \quad -7x - 3 \\ \hline \end{array}$$

$$\begin{array}{r} x - 8 = 0 \\ +8 \quad +8 \\ \hline \end{array}$$

$$x = 8$$

$$(8x - 5) + (7x + 3)$$

$$(8(8) - 5) + (7(8) + 3)$$

$$64 - 5 + 56 + 3$$

$$59 + 56 + 3$$

$$\boxed{118}$$

$$\frac{2}{6} = \frac{x}{6+4} \Rightarrow \frac{2}{6} = \frac{x}{10}$$

$$10 \cdot 2 = 20$$

$$\frac{20}{6} = \frac{10}{3}$$



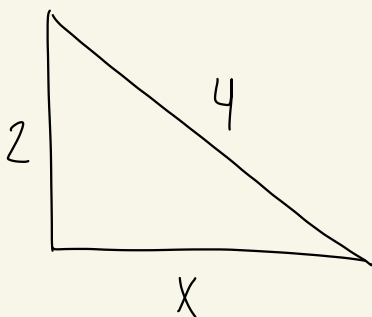
$$9x + 44 + 6x + 3 = 77$$

$$15x + 47 = 77$$

$$-47 \quad -47$$

$$\frac{15x}{15} = \frac{30}{15}$$

$$\boxed{x = 2}$$



$$2^2 + x^2 = 4^2$$

$$4 + x^2 = 16$$

$$-4 \quad -4$$

$$x^2 = 12$$

$$\boxed{x = \sqrt{12}}$$

$$6x + 3$$

$$6(2) + 3$$

$$12 + 3$$

$$\boxed{15}$$

$$3x - 1 = 2x + 8$$

$$-2x - 8 \quad -2x - 8$$

$$x - 9 = 0$$

$$x = 9$$

$$3x - 1 + 2x + 8$$

$$3(9) - 1 + 2(9) + 8$$

$$27 - 1 + 18 + 8$$

$$26 + 18 + 8$$

$$\boxed{52}$$

$$6x + 11 + 7x + 143 = 180$$

$$13x + 154 = 180$$

$$\begin{array}{r} -154 \\ -154 \end{array}$$

$$\begin{array}{r} 13x = 26 \\ \hline 13 \quad 13 \end{array}$$

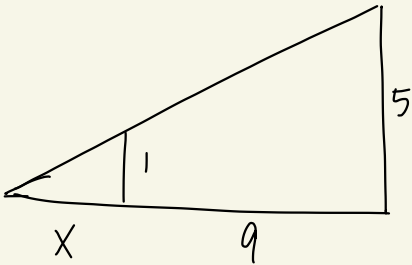
$$\boxed{x = 2}$$

$$6x + 11$$

$$6(2) + 11$$

$$12 + 11$$

$$\boxed{23}$$



$$\frac{1}{x} = \frac{5}{9+x}$$

$$1(9+x) = 5x$$

$$4x + 66 = 7x + 15$$

$$\begin{array}{r} -4x \\ -4x \end{array}$$

$$66 = 3x + 15$$

$$\begin{array}{r} -15 \\ -15 \end{array}$$

$$\begin{array}{r} 51 = 3x \\ \hline 3 \quad 3 \end{array}$$

$$\boxed{x = 17}$$

$$9+x = 5x$$

$$\begin{array}{r} -x \\ -x \end{array}$$

$$9 = 4x$$

$$\begin{array}{r} \hline 4 \quad 4 \end{array}$$

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

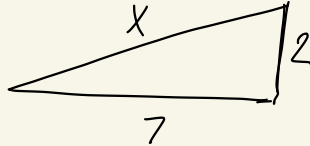
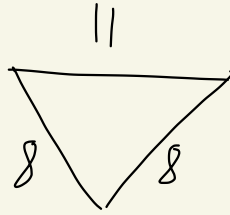
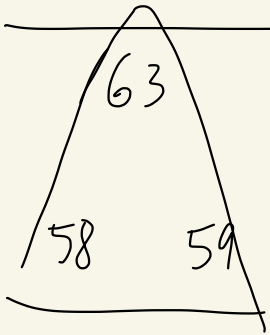
$$12^2 + x^2 = 13^2$$

$$\begin{array}{r} 144 + x^2 = 169 \\ -144 \quad -144 \end{array}$$

$$x^2 = 25$$

$$x = \sqrt{25}$$

$$x = 5$$



$$7^2 + 2^2 = x^2$$

$$49 + 4 = x^2$$

$$53 = x^2$$

$$x = \sqrt{53}$$