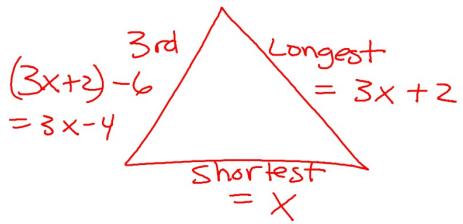
The perimeter of triangle is 68cm. The longest side is two more than three times the shortest side. The third side is six less than the longest side. Write and solve an equation to find the lengths of all three sides.



$x + 3x-4 + 3x+2 = 68$

$7x - 2 = 68$

$+2 \quad +2$

$\frac{7x}{7} = \frac{70}{7} \quad x = 10$

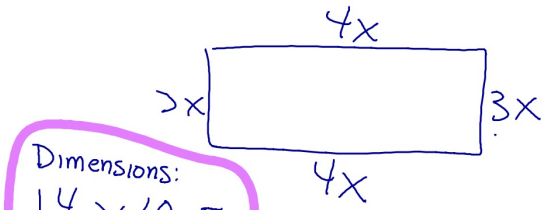
$x = 10$

$3x-4 = 3(10)-4 = 26$

$3x+2 = 3(10)+2 = 32$

3 sides are: 10, 26, 32

The sides of a rectangle are in the ratio 4:3. The perimeter of the rectangle is 49 feet. Write and solve an equation to find the dimensions of the rectangle.



Dimensions: 14 x 10.5

$4x + 3x + 4x + 3x = 49$

$\frac{14x}{14} = \frac{49}{14}$

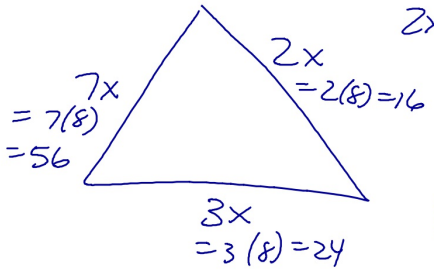
$x = 3.5$

Sides are $3x$ & $4x$

$3x = 3(3.5) = 10.5$

$4x = 4(3.5) = 14$

The sides of a triangle are in the ratio 2:3:7. The perimeter of the triangle is 96 cm. Write and solve an equation to find the lengths of the three sides.



$2x + 3x + 7x = 96$

$12x = 96$

$x = 8$

Sides are 16, 24, 56

The measure of an angle and its supplement have a difference of 37°. Write and solve a system of equations to find the measures of the two angles.

The angles are

$x - y = 37$

$+ \quad x + y = 180$ ← Supplem. angles

$2x = 217$

$\frac{2x}{2} = \frac{217}{2}$

$x = 108.5$

$108.5 + y = 180$

$-108.5 \quad -108.5$

$y = 71.5$

One angle is three less than five times the other angle. These angles are complementary. Write and solve an equation to find the measure of each angle.

$x = 5y - 3$

$x + y = 90$ ← comp angles

$5y - 3 + y = 90$

$6y - 3 = 90$

$+3 \quad +3$

$6y = 93$

$y = 15.5$

$x = 5(15.5) - 3 = 77.5 - 3 = 74.5$

or

$x + 15.5 = 90$

$-15.5 \quad -15.5$

The angles are $15.5°$ & $74.5°$