

# Worksheet (1) | Lower Secondary

Stage (6-8)

1<sup>st</sup> Semester | 2023-2024

**Subject:** Math

**Class :** Grade 7

Name:.....

**Objectives:**

- Construct and Solve linear equations .

**Teacher's name:**

When solving equations it is important that whatever is done to one side of the equation is done to the other side

**Exercise 1: Solve the following equations :**

a)  $7 + 2x = 29$

$$\begin{array}{r} 2x = 22 \\ \hline 2 \end{array}$$

$$x = 11$$

b)  $-15 = -\frac{x}{3}$

$$x = 45$$

c)  $\frac{x}{4} - 8 = 17$

$$\frac{x}{4} = 25$$

$$x = 4 \times 25$$

$$x = 100$$

d)  $\frac{(x+3)}{2} = -6$

$$\begin{array}{r} x+3 = -12 \\ -3 \quad -3 \end{array}$$

$$x = -15$$

$$-x = -1 * x$$

$$\begin{array}{r} e) \quad 22 = -x + 30 \\ \quad -30 \quad -30 \\ \hline -8 = -x \\ \boxed{8 = x} \end{array}$$

$$f) \quad \frac{3}{5}y + \frac{7}{5}y = 16$$

$$\begin{array}{r} \frac{10}{9}y = 16 \\ \frac{2}{2}y = \frac{16}{2} \\ \boxed{y = 8} \end{array}$$

$$g) \quad -7m - 9 = 12$$

$$\begin{array}{r} -7m - 9 = 12 \\ \quad +9 \quad +9 \\ \hline -7m = 21 \\ \frac{-7}{-7} \quad \frac{21}{-7} \\ \boxed{m = -3} \end{array}$$

$$h) \quad 6x - 3 + 4x = 27$$

$$\begin{array}{r} 10x - 3 = 27 \\ \quad +3 \quad +3 \\ \hline 10x = 30 \\ \frac{10}{10} \quad \frac{30}{10} \\ \boxed{x = 3} \end{array}$$

$$i) \quad 5x + 13 = 3x - 17$$

$$\begin{array}{r} 5x + 13 = 3x - 17 \\ \quad -3x \quad -3x \\ \hline 2x = -30 \\ \frac{2}{2} \quad \frac{-30}{2} \\ \boxed{x = -15} \end{array}$$

$$j) \quad 9 - 3x = 7 + x$$

$$\begin{array}{r} 9 - 3x = 7 + x \\ \quad -7 \quad +3x \quad -7 \quad +3x \\ \hline 2 = 4x \\ \frac{2}{4} = \frac{4x}{4} \\ \frac{1}{2} = x \\ 0.5 = x \end{array}$$

$$k) \quad 14 - x = 6 + x$$

$$\begin{array}{r} 14 - x = 6 + x \\ \quad +x \quad +x \\ \hline 8 = 2x \\ \frac{8}{2} = \frac{2x}{2} \\ \boxed{x = 4} \end{array}$$

$$l) \quad 7x = 40 - 3x$$

$$\begin{array}{r} 7x = 40 - 3x \\ \quad +3x \quad +3x \\ \hline 10x = 40 \\ \frac{10}{10} \quad \frac{40}{10} \\ \boxed{x = 4} \end{array}$$

$$m) \quad 9x + 6 - 3x = 6$$

$$6x + 6 = 6$$

$$\quad -6 \quad -6$$

$$\frac{6x}{6} = \frac{0}{6}$$

$$\boxed{x = 0}$$

$$n) \quad x - 8 = 10 - 2x$$

$$\quad +2x \quad +2x$$

$$\quad \quad +8 \quad +8$$


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$$3x = 18$$

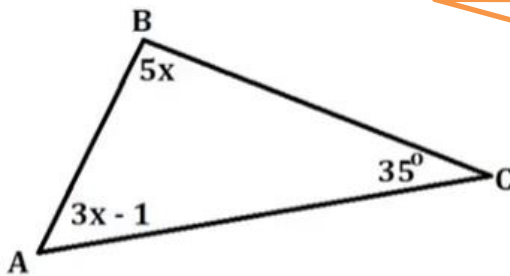
$$\frac{3x}{3} = \frac{18}{3}$$

$$\boxed{x = 6}$$

### Exercise 2:

Write and solve the equations to find all of the angle measurements:

1)



The sum of the angles of a triangle is equal to 180°

$$\textcircled{1} \quad 5x + 3x - 1 + 35 = 180^\circ$$

$$8x + 34 = 180$$

$$\quad -34 \quad -34$$

$$\frac{8x}{8} = \frac{146}{8}$$

$$\boxed{x = 18.25}$$

$$\textcircled{2} \quad \angle B = 5x$$

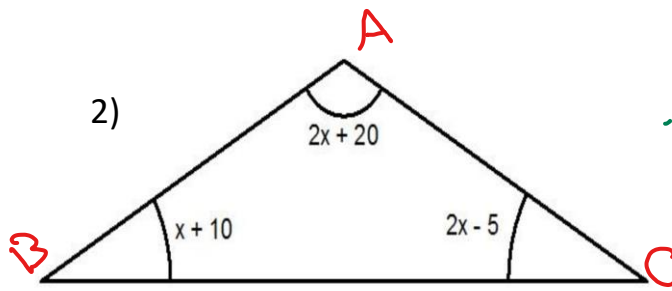
$$\angle B = 5 \cdot 18.25$$

$$= 91.25^\circ$$

$$\angle A = 3x - 1$$

$$= 3(18.25) - 1$$

$$= 53.75^\circ$$



$$\textcircled{1} \quad 2x + 20 + x + 10 + 2x - 5 = 180$$

$$5x + 25 = 180$$

$$\quad -25 \quad -25$$

$$\frac{5x}{5} = \frac{155}{5}$$

$$\boxed{x = 31}$$

$$\textcircled{2} \quad \angle A = 2x + 20$$

$$= 2(31) + 20$$

$$= 82^\circ$$

$$\angle B = x + 10$$

$$= 31 + 10$$

$$= 41^\circ$$

$$\angle C = 2x - 5$$

$$= 2(31) - 5$$

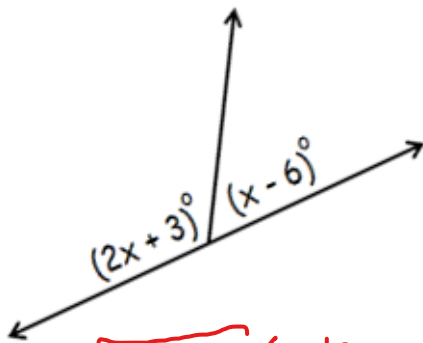
$$= 57^\circ$$

### Exercise 3 :

write and solve an equation to find the value of  $x$ .

Sum of two supplementary angles =  $180^\circ$

1)



$$2x + 3 + x - 6 = 180$$

$$3x - 3 = 180$$

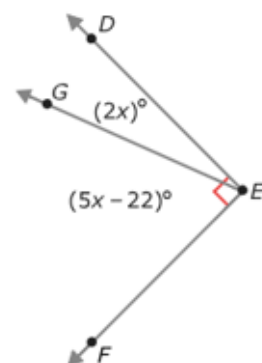
$$\quad +3 \quad +3$$

$$3x = 183$$

$$\boxed{x = 61}$$

Sum of two complementary angles =  $90^\circ$

2)



$$2x + 5x - 22 = 90$$

$$7x - 22 = 90$$

$$\quad +22 \quad +22$$

$$7x = 112$$

$$\boxed{x = 16}$$