المدرسة
الوطنية الأرثوذكسية
الشميساني

The National
Orthodox School
Shmaisani

Worksheet (1) | Lower Secondary Stage (6-8)

1st Semester | 2023-2024

Subject: Math   **Class** : Grade 7

Name:……………………………………

Objectives:

• **Construct and Solve linear equations .**   **Teacher's name: Rita Beqaeen**

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) $7 + 2x = 29$

$-7 \qquad -7$

$\dfrac{2x}{2} = \dfrac{22}{2}$

$\boxed{x = 11}$

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

$\boxed{x = 45}$

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

$+8 \qquad +8$

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

$x = 4 * 25$

$\boxed{x = 100}$

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

$x + 3 = -12$

$-3 \qquad -3$

$\boxed{x = -15}$

$-x = -1 * x$

e) $22 = -x + 30$

$ -30 \quad\quad -30$

$-8 = -x$

$8 = x$

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

$\frac{10}{5}y = 16$

$\frac{2y}{2} = \frac{16}{2}$

$y = 8$

g) $-7m - 9 = 12$

$ +9 \quad +9$

$-7m = 21$

$\frac{-7m}{-7} = \frac{21}{-7}$

$m = -3$

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

$10x - 3 = 27$

$ +3 \quad\quad +3$

$10x = 30$

$\frac{10x}{10} = \frac{30}{10}$

$x = 3$

i) $ -13 \quad\quad\quad -13$

$5x + 13 = 3x - 17$

$-3x \quad\quad -3x$

$2x = -30$

$\frac{2x}{2} = \frac{-30}{2}$

$x = -15$

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

$-7 + 3x \quad -7 + 3x$

$2 = 4x$

$\frac{2}{4} = \frac{4x}{4}$

$\frac{1}{2} = x$

$0.5 = x$

k) $ -6 \quad\quad\quad -6$

$14 - x = 6 + x$

$+x \quad\quad +x$

$8 = 2x$

$\frac{8}{2} = \frac{2x}{2}$

$x = 4$

l) $7x = 40 - 3x$

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

$10x = 40$

$\frac{10x}{10} = \frac{40}{10}$

$x = 4$

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

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

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

$\boxed{x = 0}$

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

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

$\boxed{x = 6}$

Exercise 2:

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

1)
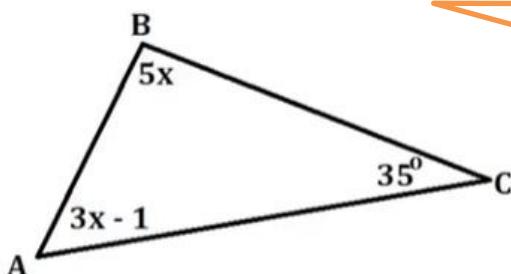
> The sum of the angles of a triangle is equal to 180°

① $5x + 3x - 1 + 35 = 180°$

$8x + 34 = 180$
$\quad -34 \quad -34$

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

$\boxed{x = 18.25}$

② $\angle B = 5x$

$\angle B = 5 * 18.25$
$\quad = 91.25°$

$\angle A = 3x - 1$
$\quad = 3(18.25) - 1$
$\quad = 53.75°$

2)

A

2x + 20

x + 10   2x - 5

B   C
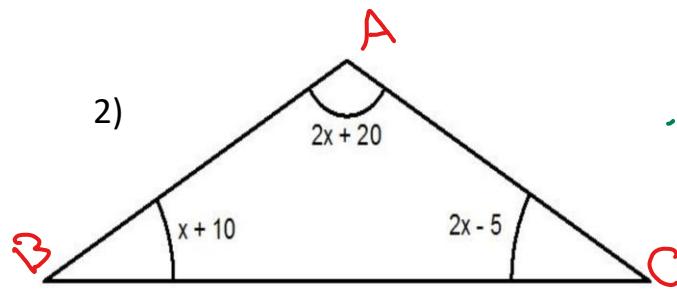
① $2x + 20 + x + 10 + 2x - 5 = 180$

$5x + 25 = 180$

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

$5x = 155$

$\dfrac{5x}{5} \quad \dfrac{155}{5}$

$\boxed{x = 31}$

② $\angle A = 2x + 20$

$= 2(31) + 20$

$= 82°$

$\angle B = x + 10$

$= 31 + 10$

$= 41°$

$\angle C = 2x - 5$

$= 2(31) - 5$

$= 57°$

Exercise 3 :

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

| Sum of two supplementary angles = 180° |

| Sum of two complementary angles = 90° |

1)
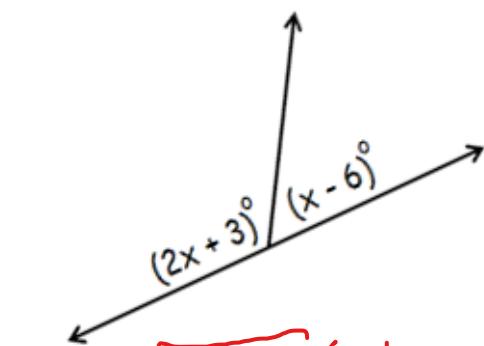
$(2x + 3)°$ $(x - 6)°$

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

$3x - 3 = 180$

$\quad +3 \qquad +3$

$3x = 183$ $\boxed{x = 61}$

2)

D

G $(2x)°$

$(5x - 22)°$ E

F
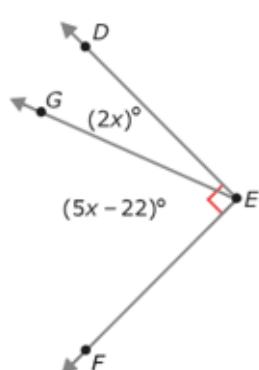
$2x + 5x - 22 = 90°$

$7x - 22 = 90$

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

$7x = 112$

$\boxed{x = 16}$