

Solve the following linear equation

$$(1) \quad \frac{5x}{2} = \frac{3x+1}{3} =$$

$$15x = 6x + 2$$

$$8x + 2$$

$$x = \frac{9}{2} \quad x = 4.5$$

$$(ii) \quad (x+5)(x+1) = (x+10)(x+2)$$

$$x^2 + x + 5x = x^2 + 2x - 10 + 20$$

$$x^2 + 6x + 5 = 16 + 2x + 20$$

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

$$\frac{x^2 + 12 + 20}{0 - 6x - 15}$$

$$\frac{6x = 15}{6} = \frac{15}{6}$$

$$\underline{\underline{2.5}}$$

(i)

$$12x^2 + 5x - 4 = 0$$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$a = 12, \quad b = 5, \quad c = -4$$

$$x = \frac{-5 \pm \sqrt{(5)^2 - 4(12)(-4)}}{2 \times 12}$$

$$= \frac{-5 \pm \sqrt{73}}{24} = \frac{-5 \pm 8.54}{24}$$

$$= \frac{-5 \pm 0.35}{24}$$

$$x = \frac{-5 - 3.5}{24}$$

$$x = \frac{-4 - 6.5}{24}$$

(7)

Solve the following by using the Quadratic equation formula:

$$(i) \quad 7x^2 + 5x - 10 = 0 \quad \underline{7x^2 + 5x - 10 = 0}$$

$$a = 7, \quad b = 5 \quad c = -10$$

$$x = -(\pm 5) \pm \sqrt{\frac{(5)^2 - 4(7)(-10)}{2 \times 7}}$$

$$= -5 \pm \sqrt{25 + 280}$$

$$= -5 \pm \sqrt{17.46}$$

$$= -5 \pm 1.24$$

$$-5 - 1.24 = -6.24$$

$$-3.76$$

$$x = 3.7606 - 6.24$$

6) Solve following by factorising

① $x^2 + 6x + 8 = 0$

$$= (x+2)(x+4)$$

② $x^2 + 4x + 3 = 0$

$$= (x+1)(x+3)$$

③ $x^2 + 3x = 4$

$$= (x+4)(x-1)$$

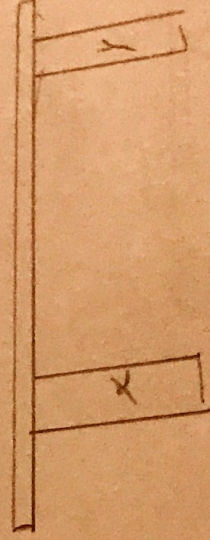
④ $x^2 + 3x - 10 = 0$

$$= (x-2)(x+5)$$

⑤ $x^2 - 5x + 6 = 0$

$$(x-3)(x-2)$$

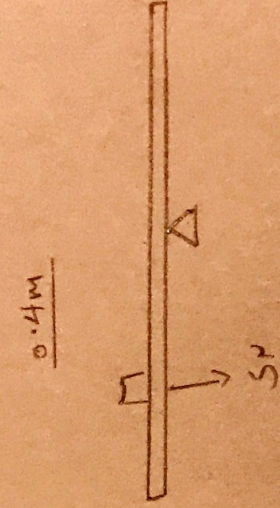
- ⑤ Figure 3 shows a uniform beam of weight 5.5 kN at rest. The beam is supported by two pillars X & Y is positioned 1.2 m from left hand side of the beam. Pillar Y is positioned 2.5 m from right side of beam.



$$\frac{\text{Clocking moment } X \times Y}{\text{C.W.M} = \text{A.C.W.M}}$$

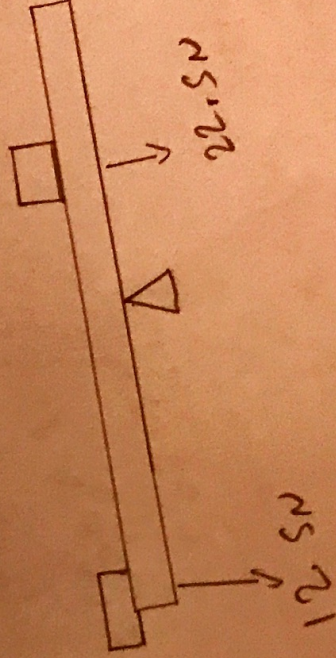
$$10 \text{ m} \times 5.5 \text{ N}$$

(4) By Considering figure



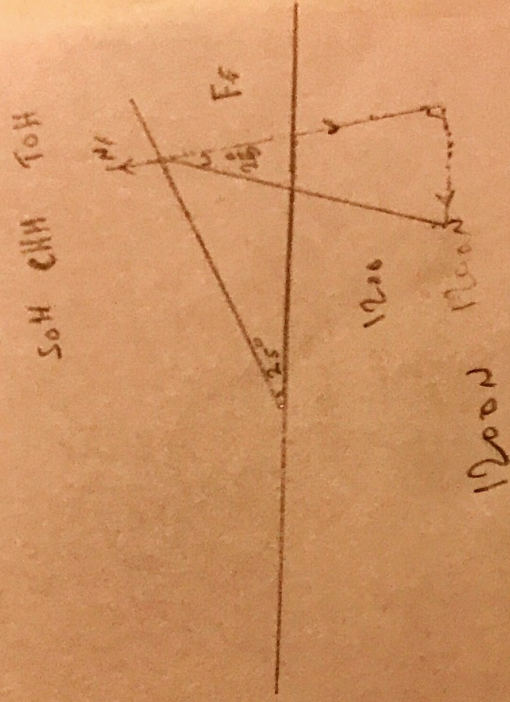
Figure

a)



3) A body of weight 1200 N rests on a rough inclined plane which is at an angle of 25° to the horizontal.

(a)

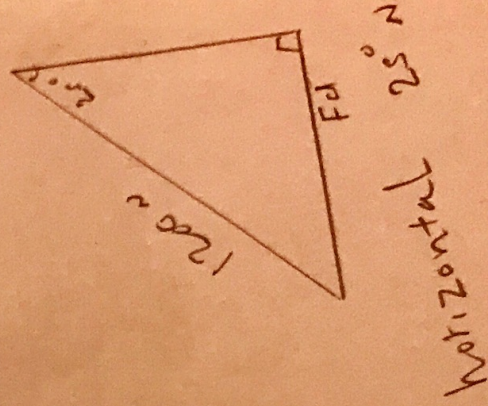


(b)

$$\begin{aligned}
 1200 \times \sin 25^\circ &= \frac{F_f}{1200} \times 1200 \\
 F_f &= 1200 \times \sin 25^\circ = \\
 &= 507.14 \\
 &= \underline{\underline{507.14}}
 \end{aligned}$$

$$F_f = 507.14 \text{ N, } 25^\circ \text{ to the}$$

(c)



1) Write down the units for following

a) Time (s)

b) Speed (ms^{-1})

c) acceleration (ms^{-2})

d) weight (N)

e) mass (kg)

2) Give the equation for density
can be written as

$$\text{Density} = \frac{\text{mass}}{\text{Volume}}$$

Write down the unit of density

$$\text{density} = \text{kg/m}^3$$