

Q1. Solve the following equations and verify your answers to each.

(Chap 2 pg 64)

- i) $3x - 6 = -9$ Ans: $x = -1$
 ii) $3x - 10 = -14$ Ans: $x = -\frac{4}{3}$
 iii) $3(x - 2) = 7(x + 5) - 13$ Ans: $x = -7$
 iv) $3(y - 1) = 1 + 4y$ Ans: $y = -4$

Q2. Solve the following fractional equations:

(Chap 2 pg 65)

- i) $\frac{a+3}{4} = \frac{1}{2}$ Ans: $a = -1$
 ii) $\frac{x-3}{2} + \frac{2x+3}{4} = 3$ Ans: $x = \frac{15}{4}$
 iii) $\frac{4x+5}{5} - \frac{2x-3}{7} = \frac{32}{35}$ Ans: $x = -1$

Q3. Manipulation of Formula

(Chap 2 Pg 66/67)

- i) Express t in terms of s and q : $2(s - 3t) = q$ Ans: $t = \frac{2s-q}{6}$
 ii) Express a in terms of v, u and s : $v^2 = u^2 + 2as$ Ans: $a = \frac{v^2-u^2}{2s}$
 iii) Express r in terms of A, π and h : $A = 2\pi rh$ Ans: $r = \frac{A}{2\pi h}$

Q4. Solve the following simultaneous equations:

(Chap 2 pg 70/71)

i) $x + y = 4$ $x - y = 10$ Ans: $x = 7, y = -3$	ii) $3x + 5y = -15$ $4x + 3y = -9$ Ans: $x = 0, y = -3$
iii) $3x + 2y = 21$ $4x - 5y = 28$ Ans: $x = 7, y = 0$	iv) $\frac{5}{4}x - \frac{3}{4}y = 3$ $3x + 2y = 11$ Ans: $x = 3, y = 1$

Q5. Solve the following inequalities and show on a number line:

(Chap 2 pg 78)

- i) $3x - 8 > 4, x \in Z$ Ans: $x > 4$
 ii) $4x + 3 \geq 6x - 4, x \in N$ Ans: $x \leq \frac{7}{2}$
 iii) $4(x - 3) \geq -2(x + 1) + 2, x \in R$ Ans: $-4 < x < 6$
 iv) $\frac{-3(2x+3)}{2} \leq \frac{-4(x+4)}{3}, x \in Z$ Ans: $0 < x \leq 3$

Past Exam Questions:

Q6. 2019 Paper 1 Q4(a)

Solve for x :

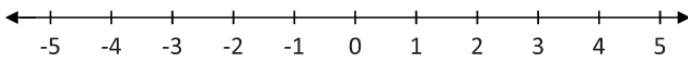
$$\frac{3x + 1}{5} + \frac{x - 2}{2} = \frac{47}{10}$$

Ans: $x = 5$

Q7. 2019 Paper 1 Q6(a)

Solve the following inequality for $x \in \mathbb{R}$ **and** show your solution on the numberline below:

$$2(3 - x) < 8.$$



Ans: $x > -1$

Q8. 2019 Paper 1 Q8(a)(ii)

The power (P) of an engine is measured in horsepower using the formula:

$$P = \frac{R \times T}{5252}$$

where R is the engine speed measured in revolutions per minute (RPM)
and T is the torque measured in appropriate units.

(ii) Rearrange the formula to write R in terms of P and T .

$$\text{Ans: } R = \frac{5252P}{T}$$

Q9. 2018 Paper 1 Q3(b)

Solve the simultaneous equations below to find the value of a and the value of b .

$$\begin{aligned} 2a + 3b &= 15 \\ 5a + b &= -8 \end{aligned}$$

Ans: $a = -3, b = 7$

Q10. 2017 Paper 1 Q4(a)

Solve for x :

$$11x - 5(2x - 1) = 3(6 - x) + 3.$$

Ans: $x = 4$