

on 3 (Jessica)
 based on the following formulas, show the variable (in the bracket) as the subject. (3m)

(i) $P = \frac{k}{2} + m$ [k] (2m)

$$P - m = \frac{k}{2} + m - m$$

$$2(P - m) = \frac{k}{2} \times (2)$$

$$2(P - m) = k$$

$$k = 2(P - m)$$

(ii) $k = \frac{1}{2}xy^2$ [y] (3m)

$$2k = \frac{1}{2}(2)xy^2$$

$$\frac{2k}{2} = \frac{xy^2}{2}$$

$$\frac{2k}{2} = y^2$$

$$y = \sqrt{\frac{2k}{2}}$$

(b) Calculate the following equations.

(i) $\frac{5}{x+6} = \frac{2}{2x+6}$ (4m)

$$x+6(2) = 2x+6(5)$$

$$2x+12 = 10x+30$$

$$2x-10x+12 = 10x-10x+30-12$$

$$-8x = 18$$

$$\frac{-8x}{-8} = \frac{18}{-8}$$

$$x = -\frac{9}{4}$$

(ii) $y^2 = -5y - 4$ (3m)

$$y^2 + 5y + 4 = -5y + 5y - 4 + 4$$

$$y^2 + 4y + y + 4 = 0$$

$$y(y+4) + 1(y+4) = 0$$

$$(y+1)(y+4) = 0$$

$$y+1=0 \quad y+4=0$$

$$y+1-1=-1 \quad y+4-4=-4$$

$$y_1 = -1 \quad y_2 = -4$$

(c) Solve the following Simultaneous linear equation by using elimination method.

$$2k + 3m - 13 = 0$$

$$3k - m - 3 = 0$$

$$3k - m - 3 = 0$$

$$3(2) - m - 3 = 0$$

$$6 - m - 3 = 0$$

$$6 - 6 - m - 3 + 3 = -6 + 3$$

$$-m = -3$$

$$2(2) + 3m - 13 = 0$$

$$11k = 22$$

$$\frac{11k}{11} = \frac{22}{11}$$

$$k = 2$$

$$4 + 3m - 13 = 0$$

$$-4 + 4 + 3m + 13 = 4 + 13$$

$$4 - 4 + 3m - 13 + 13 = 4 - 13$$

$$3m = 9$$

$$2k + 3m - 13 = 0$$

$$3 \times (3k - m - 3 = 0)$$

$$(13) 9k - 3m - 9 = 0$$

$$2k + 3m - 13 = 0$$

$$9k - 3m - 9 = 0$$

$$11k - 22 = 0$$

$$11k = 22$$

$$2k + 3m = 13$$

$$2k + 3m - 13 = 0$$

$$3k - m - 3 = 0$$

Elimination method

$$2k + 3m = 13 \text{ ——— ①}$$

$$3k - m = 3 \text{ ——— ②}$$

$$\textcircled{1} \times 3 : \quad 6k + 9m = 39$$

$$\textcircled{2} \times 2 : \quad \rightarrow \quad 6k - 2m = 6$$

$$\begin{array}{r} 11m = 33 \\ \hline 11 \end{array}$$

$$m = 3$$

When $m = 3$, in ①

$$2k + 3(3) = 13$$

$$2k + 9 = 13$$

$$2k + 9 - 9 = 13 - 9$$

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

$$k = 2$$

$$\therefore k = 2, m = 3$$

at least elimination method.

substitution method.

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