Revision Practice 3

1. **(a)** Simplify $(2a + 3b) - (5a - 2b) + (6a - b)$.

(b) Expand $(m + 4p)(2m - q)$.

(c) Given that $x = 4$ and $y = -3$, evaluate

(i) $5y^2$, **(ii)** $\frac{x}{y} + \frac{y}{x}$.

2. **(a)** Expand and simplify

(i) $(3a + b)(4a - b)$, **(ii)** $(x^2 - x + 1)(x - 1)$.

(b) Given the formula $y = \frac{2a + b}{2a - b}$, find the value of

(i) y when $a = 4$ and $b = -1$,

(ii) a when $y = 3$ and $b = 5$.

3. **(a)** Expand and simplify the following.

(i) $(2x - 1)(x + 3) - (1 - 4x)(2 + 5x)$

(ii) $(3x^2 - x + 4)(2x - 5)$

(b) Given the formula $s = \frac{1}{2}(u + v)t$,

(i) find the value of s when $u = 0$, $v = 20$ and $t = 3$,

(ii) express u in terms of s, t and v.

4. Simplify the following expressions.

(a) $\frac{2x - 3}{4} + \frac{x - 1}{5}$ **(b)** $\frac{2p - 5q}{7} - \frac{p - 6q}{3}$ **(c)** $1 - \frac{x + 1}{2} + \frac{x - 2}{6}$

5. Factorise each of the following completely.

(a) $4pq + 6qr - 10qs$

(b) $2ax + 8ay - 3bx - 12by$

(c) $7t^2 - 28$

6. Factorise each of the following completely.

(a) $15m - 12m^2$ **(b)** $x^2 - 3x - 18$ **(c)** $16 - 64y^2$

7. Factorise each of the following completely.

(a) $10x^2 + 11x + 3$

(b) $49x^2 - 28xy + 4y^2$

(c) $9at^2 - 2b + 18bt^2 - a$

8. Given the formula $T = 2k\sqrt{\frac{L}{q}}$, where $L > 0$,

(a) find the value of T when $q = 12$, $k = 3$ and $L = 75$,

(b) make L the subject of the formula,

(c) find the value of L when $T = 18$, $k = 6$ and $q = 8$.