

Revision Sheet 1 Solutions

Q1. i) $3a + 2b$
 $= 3(1) + 2(-2)$
 $= 3 - 4$
 $= \boxed{-1}$

ii) $5ab - bc$
 $= 5(1)(-2) - (-2)(3)$
 $= -10 + 6$
 $= \boxed{-4}$

iii) $2a^2 + 3b^2$
 $= 2(1)^2 + 3(-2)^2$
 $= 2 + 12$
 $= \boxed{14}$

iv) $\frac{2a-2b}{c}$
 $= \frac{2(1) - 2(-2)}{3}$
 $= \frac{6}{3}$
 $= \boxed{2}$

Q2. i) $(x+3)(x-7)$
 $= x(x-7) + 3(x-7)$
 $= x^2 - 7x + 3x - 21$
 $= \boxed{x^2 - 4x - 21}$

ii) $(2x-1)(x+4)$
 $= 2x(x+4) - 1(x+4)$
 $= 2x^2 + 8x - 1x - 4$
 $= \boxed{2x^2 + 7x - 4}$

iii) $(x+6)^2$
 $= (x+6)(x+6)$
 $= x(x+6) + 6(x+6)$
 $= x^2 + 6x + 6x + 36$
 $= \boxed{x^2 + 12x + 36}$

iv) $(2x-1)^2$
 $= (2x-1)(2x-1)$
 $= 2x(2x-1) - 1(2x-1)$
 $= 4x^2 - 2x - 2x + 1$
 $= \boxed{4x^2 - 4x + 1}$

Q3. i) $\frac{2x+1}{3} + \frac{3x-2}{2}$
 $= \frac{2(2x+1) + 3(3x-2)}{6}$
 $= \frac{2(2x+1) + 3(3x-2)}{6}$
 $= \frac{4x+2+9x-6}{6}$
 $= \boxed{\frac{13x-4}{6}}$

Multiply above + below by 2 to change to 6ths

ii) $\frac{x-5}{5} - \frac{2x+1}{3}$
 $= \frac{3(x-5) - 5(2x+1)}{15}$
 $= \frac{3(x-5) - 5(2x+1)}{15}$
 $= \frac{3x-15-10x-5}{15}$
 $= \boxed{\frac{-7x-20}{15}}$

Multiply above + below by 5 to change to 15ths

Q4. i) $2x^2 + 18x$
 $= 2x(x+9)$ (HCF)

ii) $ax - ay + bx - by$
 $= a(x-y) + b(x-y)$
 $= (a+b)(x-y)$ (Grouping)

iii) $x^2 - 3x - 18$
 $= (x-6)(x+3)$ (Trinomial)

iv) $a^2 - 16$
 $= (a)^2 - (4)^2$
 $= (a+4)(a-4)$ (Diff of 2 Squares)

v) $5x^2 + 13x - 6$
 $= (5x-2)(x+3)$ (Trinomial)

vi) $25x^2 - 49y^2$
 $= (5x)^2 - (7y)^2$
 $= (5x+7y)(5x-7y)$ (Diff of 2 Squares)

vii) $8x^2 + 6x - 9$
 $= (4x-3)(2x+3)$ (Trinomial)

Q5. i) $\frac{24x^2y^2}{12xy} = \frac{24x \cdot x \cdot y \cdot y}{12x \cdot y} = 2xy$

ii) $\frac{-15a^3b^2}{3ab} = \frac{-15a \cdot a \cdot a \cdot b \cdot b}{3a \cdot b} = -5a^2b$

iii) $\frac{5x^2 + 13x - 6}{x+3} = \frac{(5x-2)(x+3)}{1(x+3)} = 5x-2$

Q6. i) $\frac{2}{x+1} + \frac{3}{x-2}$

ii) $\frac{1}{x-8} - \frac{2}{x+2}$

Multiply above + below by $x-2$

$= \frac{2(x-2)}{(x+1)(x-2)} + \frac{3(x+1)}{(x+1)(x-2)} = \frac{1(x+2)}{(x-8)(x+2)} - \frac{2(x-8)}{(x-8)(x+2)}$

same denominator now

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

$= \frac{1(x+2) - 2(x-8)}{(x-8)(x+2)}$

$= \frac{2x-4+3x+3}{(x+1)(x-2)}$

$= \frac{x+2-2x+16}{(x-8)(x+2)}$

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

$= \frac{-x+18}{(x-8)(x+2)}$