HOMEWORK - ALGEBRA

1. Simplify by collecting like terms.

(a) 4x + 2x (b) 3a + 5a - 2a (c) 6y - 2y - 5y (d) 3f + 2f - f + 4f

(e) 3x + 2y - x + y (f) a - b + 2a + b (g) 3f - 2g + 8f + g (h) 3x + 2 - x - 4

2. Simplify

(a) $a \times b$ (b) $3x \times 2y$ (c) $2a \times 3a$ (d) $5a \times 4$

(e) $4d \times 3c$ (f) $2s \times 4t \times s$ (g) $3x \times 4y \times 2$ (h) $4 \times 3g \times 6gh$

3. Multiply out the brackets and simplify where possible.

(a) 3(2x + 1) (b) 5(3x - 2) (c) 2(1 + 2x) (d) 4(3 - 4x)

(e) 4(2x + 1) + 2(3x - 1) (f) 3(2x - 1) + 4(3x + 2) (g) 4(2x + 5) - 2(3x - 1)

(h) 3(4x + 5) + 20 (i) 5(2x - 3) - 3x (j) 2 - 3(4x - 2) (k) 3 - (x + 5)

4. Factorise by common factor.

(a) 4x + 12 (b) 5a + 40 (c) 12c - 20 (d) 8x + 30

(e) $a^2 + 2a$ (f) $r^2 - 5r$ (g) $2x^2 - 16x$ (h) $3xy + 15x^2$

5. Given that a = 2, b = 3 and c = -5, evaluate:

(a) 3a (b) 2b + 1 (c) a + c (d) 3ac

(e) a^2 (f) c^2 (g) ac^2 (h) 3ab - 2c

(i) $\frac{10ab}{c}$ (j) $\sqrt{ab^2 - 2}$

6. The formula for calculating the volume of a cylinder is $V = \pi r^2 h$.

Calculate the volume of a cylinder $\pi = 3.14$, r = 5cm and h = 14cm.