Duncanrig Secondary School: Mathematics Department

S5/6 N5 Maths Homework 2

1. Multiply out the brackets and collect like terms:-
   (a) $(x + 6)(x - 6)$
   (b) $(5b - 3)(4b - 1)$
   (c) $(3c + 2)^2$
   (d) $(x - 8)(2x^2 + 4x - 5)$

2. Factorise:-
   (a) $25c^2 - 16$ (b) $8t^2 - 18$ (c) $x^2 + 8x - 20$ (d) $2x^2 - 17x + 21$

3. Simplify:-
   (a) $9q^6 \div 3q^4$ (b) $2x^{-\frac{3}{2}} \times 3x^{\frac{5}{2}}$ (c) $(2p^4)^3$ (d) $\dfrac{6x^2 \times x^4}{3x^{-3} \times 4x^7}$

4. Multiply out, simplify and write your answer with positive powers:

$$t^{-3}\left(t^6 + t^{-4}\right)$$

5. Evaluate:-
   (a) $4^{\frac{5}{2}}$
   (b) $9^{-\frac{3}{2}}$

6. Simplify as far as possible:-
   (a) $\sqrt{\dfrac{25}{12}}$ (b) $\sqrt{6} \times \sqrt{5} \times \sqrt{10}$ (c) $\sqrt{28} + 6\sqrt{7} - \sqrt{63}$

7. Round each number to 2 significant figures:-
   (a) 516·835 (b) 4·7299 (c) 0·060518 (d) 485230