

## REVISION EXERCISE 1 FOR S3

### QUESTIONS ON INDICES AND LOGARITHMS

1. Express each of the following with a single base;

(a)  $m^x m^y m^{x-y}$

(d)  $(k^2)^m \times (k^3)^n$

(f)  $\left(\frac{1}{p^2}\right)^3 (p^3)^2 \left(\frac{1}{p}\right)^2$

(b)  $a^{m+n} a^{m-2n}$

(e)  $8^k \times 16^{3k-1}$

(g)  $(\sqrt[3]{x^{3n+1}})(\sqrt[3]{x^{-1}})$

(c)  $y^m y^n y^{2m}$

2. Simplify. Arrange the answer in ascending powers of x.

(a)  $8 - 2x + 6x^2 - 3x - 2x^2 + 16$     (b)  $xy^2 - 2x^2y - 3xy^2 - 2x^2y + 4y^2$

3. Solve for x in  $\frac{81^2 \times 27^x}{9^{3x}} = 243$

4. (a) If  $\log_5^p = 0.3145$  and  $\log_5^q = \bar{2}.1056$ , find  $\log_5^{\left(\frac{p}{q^2}\right)}$

(b) Find t if  $\log_t^8 + \log_t^4 = 5$

5. Use logarithm tables to evaluate the following;

(a)  $\frac{97.25 \times 0.00418}{0.857}$

(b)  $(0.00891)^{\frac{2}{5}}$

(c)  $\sqrt[3]{0.84 \times 32.7}$

(d)  $\sqrt{\frac{(0.4532)^2 \times 0.8925}{1.704}}$