Exponentials and Logarithms 1 – Worksheet Part 1

'Warm Up'

1) Rewrite as a logarithm:
   (a) $4^4 = 256$
   (b) $10^5 = 100000$
   (c) $3^{-2} = \frac{1}{9}$

2) Rewrite using a power:
   (a) $\log_5 25 = 2$
   (b) $\log_9 3 = \frac{1}{2}$
   (c) $\log_5 0.2 = -1$

'Aerobics'

3) Find the value of:
   (a) $\log_2 8$
   (b) $\log_{12} 12$
   (c) $\log_{10} \sqrt{10}$
   (d) $\log_4 0.25$

4) Solve for x:
   (a) $\log_5 x = 4$
   (b) $\log_7 x = 1$
   (c) $\log_{0.5} x = 0$

'Assault Course – Challenge'

5) Solve for x:
   (a) $\log_{0.25} 16 = x$
   (b) $\log_{\frac{2}{3}}(\frac{9}{4}) = x$
   (c) $\log_x 2x = 2$

Exponentials and Logarithms 1 – Worksheet Part 2

'Warm Up'

6) Solve for x, giving your answer to 3 S.F.:

   (a) $2^x = 75$
   (b) $5^x = 2$

'Aerobics'

7) Solve for x, giving your answer to 3 S.F.:

   (a) $4^{2x} = 100$
   (b) $9^{x+5} = 50$
   (c) $4^{2x+1} = 3$
   (d) $7^{2x-1} = 23$

'Assault Course – Challenge'

8) Solve to 3 s.f. $3^{2x} - 15(3^x) + 44 = 0$ (Hint: try substituting y = 3^x)

9) Solve to 3 s.f. $4(3^{2x+1}) + 17(3^x) - 7 = 0$