Exponentials & Logarithms – Questions

Q1) Rewrite these exponential expressions as logarithms.

a) $2^7 = 128$

b) $5^3 = 125$

c) $3^3 = 27$

d) $4^3 = 64$

Q2) Rewrite these logarithmic expressions as exponentials.

a) $3 = \log_2 8$

b) $\log_3 243 = 5$

c) $y = \log_5 4$

d) $2 = \log_4 16$

Q3) Simplify the following expressions.

a) $\log_2 8 + 3\log_2 4 - \log_2 16$

b) $3\log_{10} 5 + \log_{10} 8$

c) $\log_4 36 - 2\log_4 12$

d) $2\log_3 9 + \log_3 5 - \log_3 15$

Q4) Solve the following equations for x.

a) $\log_a x - \log_a 7 = \log_a 4$

b) $\log_b x + \log_b 5 = \log_b 15$

c) $\log_a 18 - \log_a(x-1) = \log_a 9$

d) $\log_p(x-3) - \log_p 4 = \log_p 5$

e) $\log_3(x-1) + \log_8 64 = 2$

Exponentials & Logarithms – Solutions

Q1) a) $\log_2 128 = 7$

b) $\log_5 125 = 3$

c) $\log_3 27 = 3$

d) $\log_4 64 = 3$

Q2) a) $2^3 = 8$

b) $3^5 = 243$

c) $5^y = 4$

d) $4^2 = 16$

Q3) a) 5 b) 3 c) -1 d) 3

Q4) a) $x = 28$

b) $x = 3$

c) $x = 3$

d) $x = 23$

e) $x = 2$