

## Unit 1 Test Review-A Mathematical Adventure!

*Have you got the power?*

1. Express as a single power, if possible:

a)  $(-2)(-2)(-2)(-2)(-2) =$

b)  $(4)(4)(4)(4)(4)(4)(4)(4) =$

c)  $(4)^3(4)^5 =$

d)  $(-3)^2(-3)^7 =$

e)  $\left(\frac{2}{3}\right)^2\left(\frac{2}{3}\right)^3 =$

f)  $(3^{12}) \div (3^7) =$

g)  $\frac{(-2)^{10}}{(-2)^8} =$

h)  $\frac{(5)^2(5)^7}{5^{-3}} =$

i)  $(2^3)^4 =$

j)  $\left[\left(\frac{3}{5}\right)^6\right]^7 =$

k)  $\left[(2^3)^4\right]^5 =$

2. Evaluate

a)  $(-3)^2 =$

b)  $-3^2 =$

c)  $3^2 - 2^3 =$

d)  $2^{-3}$

e)  $(1+2+3)^0 =$

f)  $1^0 + 2^0 =$

g)  $2^2 + 3^3 =$

h)  $2^{-3} - 3^{-2}$

3. Simplify, expressing your answer as a single power if possible:

(a)  $2^5 \times 2^8$       (b)  $(-3)^{12} \div (-3)^4$       (c)  $(4^5)^2$       (d)  $6 \times 6^5 \times 6^{-3}$

(e)  $\frac{7}{7^5}$       (f)  $3^2 (3^3)^{-4}$       (g)  $\frac{9^5}{9^{-2}}$       (h)  $\frac{(4^0)^4}{4^{-2}}$

4. **Evaluate:** Do not use a calculator and show appropriate steps.

Express answers as **fractions or integers**.

(a)  $(-2)^4$       (b)  $5^{-2}$       (c)  $4^0$       (d)  $-4^{-2}$

(e)  $2^2 - 2^{-1} - (-2)^0$       (f)  $\frac{(3^{-2})^3 \times 3^4}{3^{-2}}$

5. Simplify and express as a **single power then evaluate:** (no decimals).

(a)  $4^3 \times 8^5$       (b)  $2^{-2} \div 1$

6. Determine the value of x.

a)  $(-2)^x = -32$       b)  $(3)^x = 81$       c)  $5^x = 125$

