# Indices 2

1) **(a)** Find $m$ when $4^m \times 4^2 = 4^{12}$.

*Answer(a)* $m =$ ..... [1]

**(b)** Find $p$ when $6^p \div 6^7 = 6^2$.

*Answer(b)* $p =$ ..... [1]

2) Simplify $32x^8 \div 8x^{32}$.

*Answer* ..... [2]

3) **(a)** Simplify $a^{-3} \times a^8$.

*Answer(a)* ..... [1]

**(b)** Work out the value of $5^{-2}$.

*Answer(b)* ..... [1]

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4) Simplify

**(a)** $a^0$,

*Answer(a)* ..... [1]

**(b)** $b^3 \times b^{-5}$.

*Answer(b)* ..... [1]

5) **(a)** Which **two** of these have the same value?

$5^{-2}$ $\quad \frac{2}{5}$ $\quad \left(\frac{1}{2}\right)^2$ $\quad \left(\frac{2}{5}\right)^2$ $\quad 0.2^2$

*Answer(a)* ..... and ..... [2]

**(b)** Simplify.

**(i)** $a^6 \times a^3$

*Answer(b)*(i) ..... [1]

**(ii)** $24b^{16} \div 6b^4$

*Answer(b)*(ii) ..... [2]

6)

**(a)** Simplify the expressions.

**(i)** $p^3 \times p^7$

*Answer(a)*(i) ..... [1]

**(ii)** $t^5 \div t^8$

*Answer(a)*(ii) ..... [1]

**(b)** $(h^3)^k = h^{12}$

Find the value of $k$.

*Answer(b)* $k =$ ..... [1]

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7) Simplify the expression.

$$p + p + p + p$$

*Answer* ..... [1]

8) Simplify.

$$3x^2y^3 \times x^4y$$

*Answer(b)* ..... [2]

9) Write the following in order of size, smallest first.

$$0.5^2 \qquad 0.5 \qquad 0.5^3 \qquad \sqrt[3]{0.5}$$

*Answer* ..... < ..... < ..... < ..... [2]

10) **(a)** Simplify $(3125t^{125})^{\frac{1}{5}}$.

*Answer(a)* ..... [2]

**(b)** Find the value of $p$ when $3^p = \frac{1}{9}$.

*Answer(b)* $p =$ ..... [1]

**(c)** Find the value of $w$ when $x^{72} \div x^w = x^8$.

*Answer(c)* $w =$ ..... [1]