INDICES
DIVIDING EXPRESSIONS

A1 Simplify:

$$\frac{x^3 \times x^8}{x^5}$$

A2 Simplify:

$$\frac{x^9}{x^3 \times x^4}$$

A3 Simplify:

$$\frac{x^4 \times x^5}{x^9}$$

A4 Simplify:

$$\frac{x^6 \times x^7}{x^4 \times x^8}$$

B1 Simplify:

$$\frac{8x^{10}}{x^4}$$

B2 Simplify:

$$\frac{12x^9}{4x^4}$$

B3 Simplify:

$$\frac{8x^4 \times x^7}{2x^5}$$

B4 Simplify:

$$\frac{4x^3 \times 3x^7}{8x^4}$$

C1 Simplify:

$$\frac{a^7 b^5}{a^3}$$

C2 Simplify:

$$\frac{a^7 b^5}{b^3}$$

C3 Simplify:

$$\frac{a^9 b^7}{a^4 b^5}$$

C4 Simplify:

$$a^{11} b^9 \div a^2 b^3$$

D1 Simplify:

$$\frac{3x^5 y^6}{x^2 y^4}$$

D2 Simplify:

$$\frac{8x^4 y^6}{4x^3 y}$$

D3 Simplify:

$$\frac{5x^4 y^5}{xy^4}$$

D4 Simplify:

$$\frac{12xy^6}{9xy^2}$$

E1 Find the value of n

$$\frac{a^n}{a^7} = a^{12}$$

E2 Find the value of n

$$\frac{a^n \times a^4}{a^6} = a^3$$

E3 Find the value of n

$$\frac{a^9 \times a^5}{a^n} = a^6$$

E4 Find the value of n

$$\frac{a^5 \times a^{11}}{a^n \times a^3} = a^7$$

INDICES
DIVIDING EXPRESSIONS

A1 Simplify:

$$\frac{x^3 \times x^8}{x^5} = \frac{x^{11}}{x^5} = x^6$$

A2 Simplify:

$$\frac{x^9}{x^3 \times x^4} = \frac{x^9}{x^7} = x^2$$

A3 Simplify:

$$\frac{x^4 \times x^5}{x^9} = \frac{x^9}{x^9} = 1$$

A4 Simplify:

$$\frac{x^6 \times x^7}{x^4 \times x^8} = \frac{x^{13}}{x^{12}} = x^1$$
$$= x$$

B1 Simplify:

$$\frac{8x^{10}}{x^4} = 8x^6$$

B2 Simplify:

$$\frac{12x^9}{4x^4} = 3x^5$$

B3 Simplify:

$$\frac{8x^4 \times x^7}{2x^5} = \frac{8x^{11}}{2x^5} = 4x^6$$

B4 Simplify:

$$\frac{4x^3 \times 3x^7}{8x^4} = \frac{12x^{10}}{8x^4} = \frac{3x^6}{2}$$

C1 Simplify:

$$\frac{a^7 b^5}{a^3} = a^4 b^5$$

C2 Simplify:

$$\frac{a^7 b^5}{b^3} = a^7 b^2$$

C3 Simplify:

$$\frac{a^9 b^7}{a^4 b^5} = a^5 b^2$$

C4 Simplify:

$$a^{11} b^9 \div a^2 b^3$$
$$\frac{a^{11} b^9}{a^2 b^3} = a^9 b^6$$

D1 Simplify:

$$\frac{3x^5 y^6}{x^2 y^4} = 3x^3 y^2$$

D2 Simplify:

$$\frac{8x^4 y^6}{4x^3 y} = 2x y^5$$

D3 Simplify:

$$\frac{5x^4 y^5}{x y^4} = 5x^3 y$$

D4 Simplify:

$$\frac{12x y^6}{9x y^2} = \frac{4y^4}{3}$$

E1 Find the value of n

$$\frac{a^n}{a^7} = a^{12} \qquad n - 7 = 12$$
$$n = 19$$

E2 Find the value of n

$$\frac{a^n}{a^2} = a^3 \qquad n - 2 = 3$$
$$n = 5$$

E3 Find the value of n

$$\frac{a^{14}}{a^n} = a^6 \qquad 14 - n = 6$$
$$n = 8$$

E4 Find the value of n

$$\frac{a^{16}}{a^n \times a^3} = a^7 \qquad \frac{a^{13}}{a^n} = a^7$$
$$13 - n = 7 \qquad n = 6$$

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