

Pg 9 # 2-9 (even) 11, 12a

$$2a) 3^{5^2} \\ = \frac{1}{3^2} \\ = \frac{1}{9}$$

$$c) (-2)^{-4} \\ = \frac{1}{(-2)^4} \\ = \frac{1}{16}$$

$$e) -(-3)^0 \\ = -(1) \\ = -1$$

$$g) \frac{1}{(-4)^{-1}} \\ = (-4)^1 \\ = -4$$

$$3a) a^4 \times a^3 \\ = a^7$$

$$c) b^5 \times b^6 \times b \\ = b^{5+6+1} \\ = b^{12}$$

$$e) x^3 y^4 y^4 x^5 \\ = x^{3+5} y^{4+4} \\ = x^8 y^8$$

$$g) m^{-4} \times m^{-5} \\ = m^{-4-5} \\ = m^{-9} \\ = \frac{1}{m^9}$$

$$1) a^5 \times a^0 \\ = a^{5+0} \\ = a^5$$

$$4a) x^6 \div x^3 \\ = x^{6-3} \\ = x^3$$

$$c) t^4 \div t^{-2} \\ = t^{4-(-2)} \\ = t^{4+2} \\ = t^6$$

$$e) m^4 \div m^0 \\ = m^{4-0} \\ = m^4$$

$$5a) (x^3)^2 \\ = x^6$$

$$c) (x^2)^{-1} \\ = x^{-2} \\ = \frac{1}{x^2}$$

$$e) (a^{-1} b^2)^{-2} \\ = a^2 b^{-4} \\ = \frac{a^2}{b^4}$$

$$6a) \left(\frac{x}{a}\right)^3 \\ = \frac{x^3}{a^3} \\ = \frac{x^3}{a^3}$$

$$c) \left(\frac{x^2}{y^3}\right)^5 \\ = \frac{x^{10}}{y^{15}} \\ = \frac{x^{10}}{y^{15}}$$

$$e) \left(\frac{a}{b^{-3}}\right)^{-2} \\ = \frac{a^4}{b^6}$$

Pg 9 # 2-9 (200), 11, 12a.

U1L3 Pg 283

$$\begin{aligned} 7a) \quad & 5m^4 \times 3m^2 & c) \quad & 5a(-2ab^2)(-3b^3) & e) \quad & 7x^2(6x^{-2}) \\ & = 15m^6 & & = 5(-2)(-3)a^{1+1}b^{2+3} & & = 42x^0 \\ & & & = 30a^2b^5 & & = 42 \end{aligned}$$

$$\begin{aligned} g) \quad & (-6a^{-1}b^2)(-a^{-3}b^{-4}) & i) \quad & \frac{45a^2b^4}{9ab^2} & k) \quad & \frac{3ab^3 \times 10a^4b^4}{15a^2b^6} \\ & = -6(-1)a^{-1-3}b^{2-4} & & = 5a^{2-1}b^{4-2} & & = \frac{30a^5b^5}{15a^2b^6} \\ & = 6a^{-4}b^{-2} & & = 5ab^2 & & = 2a^3b^{-1} \\ & = \frac{6}{a^4b^2} & & & & = \frac{2a^3}{b} \end{aligned}$$

$$\begin{aligned} m) \quad & (35x^5) \div (5x^{-3}) & o) \quad & (-6m^{-4}n^3) \div (2m^{-1}n^{-6}) \\ & = 7x^{5-(-3)} & & = -3m^{-4-(-1)}n^{3-(-6)} \\ & = 7x^{5+3} & & = -3m^{-4+1}n^{2+6} \\ & = 7x^8 & & = -3m^{-3}n^8 \\ & & & = \frac{-3n^8}{m^3} \end{aligned}$$

$$\begin{aligned} 8a) \quad & (2m^3)^2 & c) \quad & (-3m^3n^2)^2 & e) \quad & (2a^{-3}b^{-2})^{-3} \\ & = 4m^6 & & = (-3)^2m^6n^4 & & = 2^{-3}a^9b^6 \\ & & & = 9m^6n^4 & & = \frac{a^9b^6}{8} \end{aligned}$$

$$\begin{aligned} g) \quad & \left(\frac{4x}{3y}\right)^2 & i) \quad & \left(\frac{3a}{-b^4}\right)^4 & k) \quad & \left(\frac{6ab^3}{2ab}\right)^3 \\ & = \frac{16x^2}{9y^2} & & = \frac{3^4a^4}{(-1)^4b^{16}} & & = \frac{(3b^2)^3}{3^3b^6} \\ & & & = \frac{81a^4}{b^{16}} & & = 27b^6 \end{aligned}$$

$$9a) \frac{6}{x^0 + y^0}$$

$$c) 4^{-1} + 2^{-3} = \frac{1}{4} + \frac{1}{8}$$

$$e) \frac{(6^4 + 4^6)}{3^{-1}}$$

$$= \frac{6}{1+1}$$

$$= \frac{2}{8} + \frac{1}{8}$$

$$= \frac{1}{3^{-1}}$$

$$= \frac{3}{2}$$

$$= \frac{3}{8}$$

$$= 3$$

11. Let d be the drop in temperature (in $^{\circ}\text{C}$)
 Let t be the time it takes the wood to
 burn completely. (in seconds)

$$t = 2^{\frac{d}{10}}$$

a) drop is 100°C .

b)

650°C is a
 'drop' of -50°C

$$t = 2$$

$$d = -50$$

$$= 2^{10}$$

$$t = 2^{-\frac{50}{10}}$$

$$= 1024$$

$$= 2^{-5}$$

$$= \frac{1}{32}$$

\therefore The wood will take
 1024 seconds to burn
 completely at 500°C and $\frac{1}{32}$ seconds at 650°C .

#12

$$\frac{45}{4} \times (4+4)^{-1}$$

$\frac{45}{1}$

$$= \frac{1}{4} \times 8^{-1}$$

$$= \frac{8}{4}^{-1}$$

$$= 2^{-1}$$

$$= 1$$

$$\text{So, } 2^{-2} \times (2^2 + 2^2) - 2^0 = 2^0$$