

(1) Simplify the following:

- (a) $m^5 \times m^2$
- (b) $m^4 \times m^{-1}$
- (c) $3m \times 2m^5$
- (d) $5m^3 \times \frac{1}{2}m^5 \times 4m^{-2}$
- (e) $m^3(1 - m^4)$
- (f) $m^5 \div m^3$
- (g) $6m \div 3m^3$
- (h) $\frac{8m^5}{4m^4}$
- (i) $\frac{9m^5 \times 6m}{3m^{-2}}$
- (j) $m^3 \times (-6m)^2$

(2) Simplify the following:

- (a) $(2m^2)^3$
- (b) $3(m^4n)^2$
- (c) $(3m^{-1}n^2)^3$
- (d) $(3m^2)(3m^4)^2$
- (e) $\left(\frac{4m^3}{n^5}\right)^3$

(3) Simplify the following:

- (a) 3^0
- (b) a^0
- (c) $3m^0$
- (d) $(6m)^0$
- (e) $\frac{m^5 \times 6m}{3m^6}$

(4) Evaluate the following:

- (a) 2^{-1}
- (b) 3^{-2}
- (c) $\left(\frac{2}{5}\right)^{-3}$
- (d) 4×2^{-4}
- (e) $\frac{3}{4^{-2}}$
- (f) $4^{-1} \times \frac{1}{3^2}$
- (g) $5 \times \frac{1}{3^{-2}}$

(6) Write each of the following with a positive index:

- (a) m^{-1}
- (b) $3m^{-2}$
- (c) $\frac{4}{m^{-3}}$
- (d) $5m^{-4}$
- (e) $\left(\frac{2m^3}{n^2}\right)^{-3}$

(7) Write each of the following values as a power of 10:

- (a) 100
- (b) $\frac{1}{10}$
- (c) 0.01
- (d) 0.002

(8) Evaluate the following:

- (a) $25^{\frac{1}{2}}$
- (b) $8^{\frac{1}{3}}$
- (c) $81^{\frac{1}{4}}$
- (d) $16^{0.25}$
- (e) $0.01^{0.5}$
- (f) $3 \times 125^{\frac{1}{3}}$
- (g) $0.09^{0.5} \times \sqrt{10000}$

(9) Simplify the following:

- (a) $(m^4)^{\frac{1}{2}}$
- (b) $(8m^3)^{\frac{1}{3}}$
- (c) $3(16m^{-1})^{\frac{1}{2}}$
- (d) $(625m^2n^3)^{\frac{1}{4}} \times (81mn)^{0.5}$

(10) Evaluate the following:

- (a) $8^{\frac{2}{3}}$
- (b) $16^{\frac{3}{2}}$
- (c) $27^{\frac{4}{3}}$
- (d) $81^{0.75}$
- (e) $32^{0.6}$
- (f) $\left(\frac{4}{81}\right)^{\frac{3}{2}}$

$$(g) \left(3^{-2} \times 27^{\frac{1}{3}}\right)^2$$

$$(h) \left(1\frac{9}{16}\right)^{1.5}$$

(11) Simplify the following:

- (a) $(8m^3)^{\frac{4}{3}}$
- (b) $9^{\frac{3}{2}} \times (m^4)^{-3}$

(12) Evaluate the following:

- (a) $25^{\frac{1}{2}}$
- (b) $8^{\frac{4}{3}}$
- (c) $3 \times 16^{\frac{3}{4}}$
- (d) $\left(\frac{9}{25}\right)^{\frac{3}{2}}$
- (e) $(0.16)^{\frac{1}{2}}$

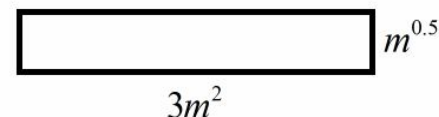
(13) Simplify the following:

- (a) $(4m^{-1})^{\frac{1}{2}} \times 5^2$
- (b) $\left(\frac{9m^{0.5}n^2}{25}\right)^{\frac{3}{2}}$
- (c) $(2m)^{-3} \times (32m^2)^{2.5}$

(14) Find the values of a and n such that:

$$(3m^3)^{-2} \times (9m^2)^{1.5} \equiv am^n$$

(15) The area of the rectangle below is 96 square units. Find the perimeter of the rectangle.



(16) Given, when simplified, the expression

$$(2x)^{-1} \times \frac{3}{\sqrt{x}} \times (6x^n)^2$$

is independent of terms in x :

- (a) Find the value of n .
- (b) Write down the value of the expression.