

1.

Simplify the following by using the exponential laws.

(a) $(3z^6)^2$

(b) $2e^2m^4 \times 5e^3m^3$

(c) $(-3x^3)^2 \times (-2x^3)^2$

(d) $(5p^2)^0$

(e) $\left(\frac{1}{3} q^8y^2\right)^4$

(f) $-\left(-\frac{1}{4} a^3b^2\right)^3$

(g) $\frac{7^3 m^{-3}}{7^{-1} m^6}$

(h) $\left(\frac{2^3 e^{-3}}{y^3 p^{-3}}\right)^{-2}$

(i) $36^{3x+4} \times 18^{4x}$

(j) $25^{4b+5} \times 25^{3b}$

2.

Solve exponential equations.

(a) $25^x = 1$

(b) $81^d = 27$

(c) $2.32^w = 4$

(d) $5.125^z - 3125 = 0$

(e) $8^y \times 2^{y-1} = 1$

(f) $49^{a-1} \times 7^{a+1} = 1$

(g) $7^h - 7^{h-3} = 342$

(h) $5^v + 5^{v-4} = 626$

(i) $8x^{\frac{1}{3}} = 16$