

Correction 1

a. $3^2 \times 3^4 = 3^{2+4} = 3^6$

b. $5^8 \times 5^7 = 5^{8+7} = 5^{15}$

c. $3 \times 3^4 = 3^{1+4} = 3^5$

d. $\frac{3^5}{3^2} = \frac{3^2 \times 3^3}{3^2} = 3^3$

e. $\frac{8^3}{8^2} = \frac{8^2 \times 8}{8^2} = 8$

f. $\frac{4^5}{4^6} = \frac{4^5}{4^5 \times 4} = \frac{1}{4}$

g. $\frac{3^5}{3^8} = \frac{3^5}{3^5 \times 3^3} = \frac{1}{3^3}$

h. $3^2 \times 5^2 = (3 \times 5)^2 = 15^2$

i. $4^3 \times 5^3 = (4 \times 5)^3 = 20^3$

Correction 2

a. $10^2 \times 10^7 = 10^{2+7} = 10^9$

b. $10^{14} \times 10^{21} = 10^{14+21} = 10^{35}$

c. $\frac{10^7}{10^4} = 10^{7-4} = 10^3$

d. $\frac{10^{21}}{10^{14}} = 10^{21-14} = 10^7$

e. $(10^4)^2 = 10^{4 \times 2} = 10^8$

f. $(10^3)^3 = 10^{3 \times 3} = 10^9$

Correction 7

a. a. $(-3)^4 = 3^4 = 81$

b. $-(3)^4 = -81$

c. $-3^4 = -81$

b. a. $(-3)^2 \times (-3^2) = 9 \times (-9) = -81$

b. $-5^{-2} \times (-5)^2 = -\frac{1}{5^2} \times 25 = -\frac{1}{25} \times 25 = -\frac{25}{25} = -1$

c. $(-3)^3 \times (-3)^{-4} = -3^3 \times \frac{1}{(-3)^4} = -\frac{3^3}{3^4} = -\frac{1}{3}$

d. $(-4^6)^4 = -(4^6)^4 = -4^{6 \times 4} = -4^{24}$

Correction 3

a. $10^4 \times 10^{-2} = 10^{4+(-2)} = 10^2$

b. $\frac{10^{16}}{(10^2)^8} = \frac{10^{16}}{10^{2 \times 8}} = \frac{10^{16}}{10^{16}} = 1$

c. $\frac{10 \times 10^{-4}}{10^{-8}} = \frac{10^{1+(-4)}}{10^{-8}} = \frac{10^{-3}}{10^{-8}} = 10^{-3-(-8)} = 10^5$

d. $\frac{10^3}{10^{-3}} = 10^{3-(-3)} = 10^{3+3} = 10^6$

e. $10^{-3} \times (10^5 \times 10^{-3})^2 = 10^{-3} \times (10^{5+(-3)})^2$
 $= 10^{-3} \times (10^2)^2 = 10^{-3} \times 10^4 = 10^1$

f. $\frac{10^5 \times 10^{-4}}{10^{-3}} = \frac{10^{5+(-4)}}{10^{-3}} = \frac{10^1}{10^{-3}} = 10^{1-(-3)} = 10^4$

Correction 4

a. $10^2 \times 10^{-1} \times 10^{-2} = 10^{2+(-1)+(-2)} = 10^{-1}$

b. $\frac{10^3 \times 10^{-3}}{10^5} = \frac{10^{3+(-3)}}{10^5} = \frac{10^0}{10^5} = 10^{0-5} = 10^{-5}$

c. $\frac{10^{-7}}{10^{-7}} = 10^{-7-(-7)} = 10^{-7+7} = 10^0 = 1$

d. $\frac{10^{-5} \times 10^4}{10^5} = \frac{10^{-5+4}}{10^5} = \frac{10^{-1}}{10^5} = 10^{-1-5} = 10^{-6}$

e. $(10^2 \times 10^{-4})^2 \times 10^{-4} = (10^{2+(-4)})^2 \times 10^{-4}$
 $= (10^{-2})^2 \times 10^{-4} = 10^{-2 \times 2} \times 10^{-4} = 10^{-4} \times 10^{-4}$
 $= 10^{-4+(-4)} = 10^{-8}$

f. $\frac{10^3}{(10^{-2})^4} = \frac{10^3}{10^{-2 \times 4}} = \frac{10^3}{10^{-8}} = 10^{3-(-8)} = 10^{3+8} = 10^{11}$