

Chap. 10 Review, p. 455-457: 1-34

$$1) (-9)(-9)(-9)(-9)(-9) \\ = (-9)^5 \checkmark$$

$$4) p^5 \cdot p^2 = p^{5+2} = p^7 \checkmark$$

$$2) 2 \cdot 2 \cdot 2 \cdot n \cdot n \\ = 2^3 n^2 \checkmark$$

$$7) (n^{11})^2 = n^{11 \cdot 2} = n^{22} \checkmark$$

$$3) 6^3 = 6 \cdot 6 \cdot 6 = 216 \checkmark$$

$$8) (5y)^3 = 5^3 y^3 = 125y^3 \checkmark$$

$$4) -\left(\frac{1}{2}\right)^4 \\ = -\left(\frac{1}{2}\right)\left(\frac{1}{2}\right)\left(\frac{1}{2}\right)\left(\frac{1}{2}\right) \\ = -\frac{1}{16} \checkmark$$

$$9) (-2k)^4 = (-2)^4 k^4 = 16k^4 \checkmark$$

$$10) \frac{8^8}{8^3} = 8^{8-3} = 8^5 \checkmark$$

$$5) \left| \frac{1}{2}(16 - 6^3) \right| \\ = \left| \frac{1}{2}(16 - 216) \right| \\ = \left| \frac{1}{2}(-200) \right| \\ = |-100| \\ = 100 \checkmark$$

$$11) \frac{5^2 \cdot 5^9}{5} = \frac{5^{11}}{5} = 5^{11-1} = 5^{10} \checkmark$$

$$12) \frac{w^8}{w^7} \cdot \frac{w^5}{w^2} = \frac{w^{13}}{w^9} = w^4 \checkmark$$

$$13) \frac{2^2 \cdot 2^5}{2^3} = \frac{2^7}{2^3} = 2^4 = 16 \checkmark$$

$$14) \frac{(6c)^3}{c} = \frac{4^3 c^3}{c}$$

$$= 216c^{3-1} = 216c^2 \checkmark$$

$$15) \frac{m^8}{m^6} \cdot \frac{m^{10}}{m^4} = \frac{m^{18}}{m^{15}} = m^3 \checkmark$$

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

$$17) 95^0 = 1 \checkmark$$

$$18) \frac{8^2}{8^4} = 8^{-2} = \frac{1}{8^2} = \frac{1}{64} \checkmark$$

$$19) (-12)^{-7} \cdot (-12)^7$$

$$= (-12)^0 = 1 \checkmark$$

$$20) \frac{1}{7^9} \cdot \frac{1}{7^{-6}} = \frac{1}{7^3}$$

$$= \frac{1}{343} \checkmark$$

$$21) \frac{9^4 \cdot 9^{-2}}{9^2} = \frac{9^2}{9^2} = 1 \checkmark$$

$$22) 2 \times 10^7$$

$$= 2 \underbrace{00000000}_8 \text{ zeros}$$

$$= 20,000,000 \checkmark$$

$$23) 3.4 \times 10^{-2}$$

$$= \underbrace{003.4}_2 \text{ zeros}$$

$$= 0.034 \checkmark$$

$$24) 1.5 \times 10^{-9}$$

$$= \underbrace{0000000001.5}_{10 \text{ zeros}}$$

$$= 0.00000000015 \checkmark$$

$$25) 5.9 \times 10^{10}$$

$$= 5.9 \underbrace{000000000000}_{10 \text{ zeros}}$$

$$= 59,000,000,000$$

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$$\begin{aligned} 26) \quad & 4.8 \times 10^{-3} \\ & = \underbrace{004.8} \\ & = 0.0048 \checkmark \end{aligned}$$

$$\begin{aligned} 27) \quad & 6.25 \times 10^5 \\ & = \underbrace{6.25000} \\ & = 625,000 \checkmark \end{aligned}$$

$$\begin{aligned} 28) \quad & \underbrace{0.00036} \\ & = 3.6 \times 10^{-4} \checkmark \end{aligned}$$

$$\begin{aligned} 29) \quad & \underbrace{800,000} \\ & = 8 \times 10^5 \checkmark \end{aligned}$$

$$\begin{aligned} 30) \quad & \underbrace{79,200,000} \\ & = 7.92 \times 10^7 \checkmark \end{aligned}$$

$$\begin{aligned} 31) \quad & (4.2 \times 10^8) + (5.9 \times 10^9) \\ & = (0.42 \times 10^9) + (5.9 \times 10^9) \\ & = (0.42 + 5.9) \times 10^9 \\ & = 6.32 \times 10^9 \checkmark \end{aligned}$$

$$\begin{aligned} 32) \quad & (5.9 \times 10^{-4}) - (1.8 \times 10^{-4}) \\ & = (5.9 - 1.8) \times 10^{-4} \\ & = 4.1 \times 10^{-4} \checkmark \end{aligned}$$

$$\begin{aligned} 33) \quad & (7.7 \times 10^8) \times (4.9 \times 10^{-5}) \\ & = (7.7 \times 4.9) \times (10^8 \times 10^{-5}) \end{aligned}$$

$$\begin{array}{r} 7.7 \\ \times 4.9 \\ \hline 693 \\ 308 \\ \hline 37.73 \end{array}$$

$$\begin{aligned} & = 37.73 \times 10^3 \\ & = 3.773 \times 10^4 \checkmark \end{aligned}$$

$$34) (3.6 \times 10^5) \div (1.8 \times 10^9)$$

$$= \frac{3.6 \times 10^5}{1.8 \times 10^9}$$

$$= \frac{3.6}{1.8} \times \frac{10^5}{10^9}$$

$$= 2 \times 10^{-4} \checkmark$$