

Quiz # 1



1.) Simplify:

a) $x^5 \cdot x^4$

b) $\frac{a^6}{a}$

c) $\left(\frac{a^2}{b^3}\right)^3$

d) $\left(\frac{a}{b}\right)^{-1}$

e) $[(a^3)^{25}]^0$

(2 pts. each)

2.) Simplify

a) $(-5a^2b^3)(4ab^2)$

b) $\frac{6a^3b^4}{3ab^2}$

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

d) $\left(\frac{y^2}{2x}\right)^4$

(3 pts. each)

3.) Evaluate

a) 5^{-2}

b) -5^2

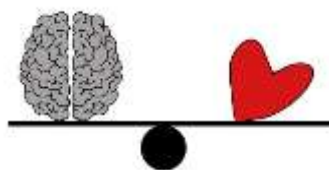
c) $\left[\left(\frac{1}{2}\right)^{-1}\right]^3$

d) $(-5)^{-3}$

(2 pts. each)

Bonus

$(2^{-1} + 2^{-2})^{-2}$



(5 pts.)

Quiz # 2

1. Write the following numbers in scientific notation! (2 pts. each)

a) 3 520 000 000

b) 0.0000148

c) $0.025 \cdot 10^{-4}$

d) $156 \cdot 10^3$

2. Write the approximations of the following numbers as stated. (2 pts. each)

a) Write 3.4956

(I) nearest tenth

(II) in three significant figures

b) Write 786.832

(I) nearest hundreds

(II) nearest hundredth

Bonus

Evaluate and give your answer in scientific notation! (4 pts.)

$$\frac{8 \cdot 10^6 \cdot 8 \cdot 10^2}{2 \cdot 10^3}$$



Quiz # 3

1.) $\frac{5^3}{5^9}$

2.) $\frac{5a^5}{3a^3}$

3.) $(-46x^2y^3z)^0$

4a) $\frac{1}{x^{-3}}$

b) $\frac{x^{-3}}{x^{-7}}$

5.) $(-3x^{-1}y^2)^2$

6.) $(-5x^{-2}y)(-2x^{-3}y^2)$

7a) $\left(\frac{3}{x}\right)^{-2}$

b) x^6x^5

c) $\frac{-6}{x^{-2}}$

d) $\frac{3x^{-2}y}{xy}$

Results

Quiz # 1

1.) a) $x^5 \cdot x^4 = x^{5+4} = \underline{x^9}$

b) $\frac{a^6}{a} = a^{6-1} = \underline{a^5}$

c) $\left(\frac{a^2}{b^3}\right)^3 = \frac{a^{2 \cdot 3}}{b^{3 \cdot 3}} = \frac{a^6}{b^9}$

d) $\left(\frac{a}{b}\right)^{-1} = \frac{1}{\left(\frac{a}{b}\right)^1} = 1 : \frac{a}{b} = 1 \cdot \frac{b}{a} = \frac{b}{a}$

e) $[(a^3)^{25}]^0 = \underline{1}$

2a) $(-5a^2b^3)(4ab^2) = -20a^{2+1}b^{3+2} = \underline{-20a^3b^5}$

b) $\frac{6a^3b^4}{3ab^2} = (6 : 3)a^{3-1}b^{4-2} = \underline{2a^2b^2}$

c) $(-2x^3)^3 = (-2)^3x^{3 \cdot 3} = \underline{-8x^9}$

d) $\left(\frac{y^2}{2x}\right)^4 = \frac{y^{2 \cdot 4}}{2^4x^4} = \frac{y^8}{16x^4}$

3a) $5^{-2} = \frac{1}{5^2} = \frac{1}{25}$

b) $-5^2 = \underline{-25}$

c) $\left[\left(\frac{1}{2}\right)^{-1}\right]^3 = \left(\frac{1}{2}\right)^{-1 \cdot 3} = \frac{1^{-3}}{2^{-3}} = \frac{1}{\frac{1}{2^3}} = 1 : \frac{1}{8} = 1 \cdot 8 = \underline{8}$

d) $(-5)^{-3} = \frac{1}{(-5)^3} = \underline{-\frac{1}{125}}$

Bonus: $(2^{-1} + 2^{-2})^{-2} = \left(\frac{1}{2} + \frac{1}{2^2}\right)^{-2} = \left(\frac{1}{2} + \frac{1}{4}\right)^{-2} = \left(\frac{3}{4}\right)^{-2} = \frac{1}{\left(\frac{3}{4}\right)^2} = 1 : \frac{3^2}{4^2} = 1 \cdot \frac{16}{9} = \underline{1\frac{7}{9}}$

Quiz # 2

1. a) $3\,520\,000\,000 = \underline{3.52 \cdot 10^9}$

b) $0.0000148 = \underline{1.48 \cdot 10^{-5}}$

c) $0.025 \cdot 10^{-4} = \underline{2.5 \cdot 10^{-6}}$

d) $156 \cdot 10^3 = \underline{1.56 \cdot 10^5}$

2a) (I) nearest tenth $3.4956 \approx \underline{3.5}$

(II) in three significant figures $3.4956 \approx \underline{3.50}$

b) (I) nearest hundreds $786.832 \approx \underline{800}$

(II) nearest hundredth $786.832 \approx \underline{786.83}$

Bonus $\frac{8 \cdot 10^6 \cdot 8 \cdot 10^2}{2 \cdot 10^3} = \frac{64}{2} \cdot 10^{6+2-3} = 32 \cdot 10^5 = \underline{3.2 \cdot 10^6}$

Quiz # 3

1.) $\frac{5^3}{5^9} = 5^{3-9} = 5^{-6} = \frac{1}{5^6}$

2.) $\frac{5a^5}{3a^3} = 1\frac{2}{3}a^{5-3} = \underline{1\frac{2}{3}a^2}$

3.) $(-46x^2y^3z)^0 = \underline{1}$

4a) $\frac{1}{x^{-3}} = 1 : \frac{1}{x^3} = 1 \cdot x^3 = \underline{x^3}$

b) $\frac{x^{-3}}{x^{-7}} = \frac{1}{x^3} : \frac{1}{x^7} = \frac{1}{x^3} \cdot x^7 = x^{7-3} = \underline{x^4}$

5.) $(-3x^{-1}y^2)^2 = (-3)^2x^{-1 \cdot 2}y^{2 \cdot 2} = \underline{9\frac{y^4}{x^2}}$

6.) $(-5x^{-2}y)(-2x^{-3}y^2) = 10x^{-2+(-3)}y^{1+2} = \underline{10\frac{y^3}{x^5}}$

7a) $\left(\frac{3}{x}\right)^{-2} = \frac{3^{-2}}{x^{-2}} = \frac{1}{9} \cdot x^2$

b) $x^6x^5 = x^{6+5} = \underline{x^{11}}$

c) $\frac{-6}{x^{-2}} = -6 : \frac{1}{x^2} = \underline{-6x^2}$

d) $\frac{3x^{-2}y}{xy} = 3x^{-2-1}y^{1-1} = \underline{3 \cdot \frac{1}{x^3}}$