

Chapter 7 Mid-Chapter Practice

(Lessons 7-1 through 7-4)

SCORE _____

Part I Write the letter for the correct answer in the blank at the right of each question.

1. Simplify $(n^4)(n^6)(r^2)(r^7)$.

1. $n^{10}r^9$

2. Simplify $(-2w^3r^2)^3(5w^4r^3)^2$.

$(-8w^9r^6)(25w^8r^6)$

2. $-200w^{17}r^{12}$

Simplify. Assume the denominator is not equal to zero.

3. $\frac{m^2n^6}{m^5n^4}$

$= m^{2-5}n^{6-4} = m^{-3}n^2$

3. $\frac{n^2}{m^3}$

4. $\frac{(z^{-2}w^3)^2}{(z^2w^4)^3}$

$= \frac{z^{-4}w^6}{z^6w^{12}} = \frac{1}{z^{10}w^6}$

4. $\frac{1}{z^{10}w^6}$

5. Solve $4^{2x-3} = 256$.

$4^{2x-3} = 4^4 \rightarrow 2x-3 = 4$
 $2x-3=4 \rightarrow 2x=7$
 $x = 7/2$

5. $x = 7/2$

6. Express 0.000056 in scientific notation.

5.6×10^{-5}

6. 5.6×10^{-5}

7. Evaluate $\frac{5.12 \times 10^6}{2.4 \times 10^{-3}}$.

$= 2.13 \times 10^9$ $\left(\frac{5.12}{2.4}\right)\left(\frac{10^6}{10^{-3}}\right)$

7. 2.13×10^9

Part II Evaluate each product. Express the results in both scientific notation and standard form.

8. $(2.3 \times 10^{-4})(3.5 \times 10^6) = (2.3 \times 3.5)(10^{-4} \times 10^6) = 8.05 \times 10^2$

8. 8.05×10^2

9. $(5 \times 10^{-6})(7.1 \times 10^{-2}) = (5 \times 7.1)(10^{-6} \times 10^{-2}) = 35.5 \times 10^{-8} = 3.55 \times 10^{-7}$

9. 3.55×10^{-7}

Simplify. Assume that no denominator is equal to zero.

10. $\frac{3(x^3y^5)^2}{4x^5y^3}$

$= \frac{3x^6y^{10}}{4x^5y^3}$

10. $\frac{3xy^7}{4}$

11. $\frac{-12m^{-3}y^{-3}r^0}{-16m^{-6}yr^{-4}}$

$= \frac{3m^3r^4}{4y^4}$

11. $\frac{3m^3r^4}{4y^4}$

Solve each equation.

12. $4^x = 32$

$(2^2)^x = 2^5 \rightarrow 2^{2x} = 2^5 \rightarrow 2x = 5$
 $x = 5/2$

12. $x = 5/2$

13. $125^{x-2} = 5$

$(5^3)^{x-2} = 5^1 \rightarrow 5^{3x-6} = 5^1 \rightarrow 3x-6 = 1$
 $3x = 7$

13. $x = 7/3$