Worksheet 7

1. Simplify. $\left(a^3 b^{-2} \right)^{-2}$

   A. $\dfrac{1}{a^2 b}$

   B. $\dfrac{a}{b^4}$

   C. $\dfrac{b^4}{a^6}$

   D. $a^2 b$

2. Simplify. $\dfrac{\left(3x \right)^{-8}}{\left(3x \right)^{-10}}$

   A. $-9x^2$

   B. $\dfrac{1}{9x^2}$

   C. $9x^2$

   D. $\left(3x \right)^{18}$

3. Simplify. $\dfrac{\left(y^{-2} \right)^{-3} \left(y^{-2} \right)^4}{y^5}$

   A. $-y^8$

   B. $-y^7$

   C. $\dfrac{1}{y^8}$

   D. $\dfrac{1}{y^7}$

4. Simplify. $\dfrac{2x y^{-2}}{5x^2 y^{-1}}$

   A. $\dfrac{2y}{5x}$

   B. $\dfrac{5xy}{2}$

   C. $\dfrac{10}{xy}$

   D. $\dfrac{2}{5xy}$

5. Simplify. $\dfrac{3m^{-3} n^2}{\left(3mn^2 \right)^{-2}}$

   A. $\dfrac{27n^6}{m}$

   B. $\dfrac{3n^6}{m}$

   C. $\dfrac{n^6}{27m}$

   D. $\dfrac{27n^8}{m}$

6. Simplify and express the answer in scientific notation.

   $\dfrac{\left(2.5 \times 10^{-6} \right)\left(4 \times 10^6 \right)}{2 \times 10^{-5}}$

   A. 5.0×10^{-31}

   B. 5.0×10^{-5}

   C. 5.0×10^5

   D. 5.0×10^7

7. Simplify and express the answer in scientific notation.

$$\frac{\left(6\times10^{2}\right)\cdot\left(8\times10^{3}\right)}{\left(15\times10^{3}\right)+\left(9\times10^{3}\right)}$$

A. 3.5×10^{-2}

B. 2.0×10^{-1}

C. 2.0×10^{2}

D. 3.5×10^{11}

8. A tiny particle is rectangular in shape. The length of the particle is 3.0×10^{-4} mm and the width is 1.5×10^{-4} mm. The area of the particle is

A. 4.5×10^{-16} mm^2

B. 2.0×10^{-8} mm^2

C. 4.5×10^{-8} mm^2

D. 2.0 mm^2

9. Simplify and express the answer in scientific notation.

$$\frac{9\times10^{2}-1\times10^{2}}{\left(2\times10^{4}\right)\cdot\left(2\times10^{4}\right)}$$

A. 1.5×10^{-10}

B. 1.5×10^{-6}

C. 0.5×10^{-2}

D. 2.0×10^{-6}

10. Simplify and express the answer in scientific notation.

$$\frac{\left(9\times10^{3}\right)+\left(4\times10^{3}\right)}{\left(4\times10^{7}\right)-\left(6\times10^{7}\right)}$$

A. -1.5×10^{-14}

B. -6.5×10^{-8}

C. -6.5×10^{-4}

D. -1.5×10^{-4}

11. If you double a certain number and then subtract five, the result is $\frac{3}{4}$ of the original number. Find the original number.

A. $\frac{5}{3}$

B. -4

C. 4

D. $-\frac{5}{3}$

12. An investment is made at 7% simple interest for 1 year. It grows to \$909.50. How much was originally invested (the principal) ?

A. \$ 63.67

B. \$ 973.17

C. \$ 832.45

D. \$ 850.00