

Instructions: Show all work. Reduce as much as possible and use exact answers unless specifically asked to round.

1. Multiply.

a. $(5x - 6)(x + 2)$

$$\begin{array}{r} 5x^2 + 10x - 6x - 12 \\ 5x^2 + 4x - 12 \end{array}$$

c. $(11x - 7y)(11x + 7y)$

$$121x^2 - 49y^2$$

b. $(3a - 5)^2$

$$9a^2 - 30a + 25$$

2. Simplify. Write the expression with positive exponents only.

a. $(-2x^3y^4)(3x^{-1}y)$

$$-6x^2y^5$$

b. $\left(\frac{a^{-5}b}{ab^3}\right)^{-4}$

$$\frac{a^{20}b^{-4}}{a^{-4}b^{-12}} = a^{24}b^8$$

3. Complete the table.

Standard Notation	Scientific Notation
a. 0.00635	6.35×10^{-3}
b. 700,000	7×10^5
c. 0.0009056	9.056×10^{-4}
d. 9,700,000,000	9.07×10^{10}
e. 5	$(2.5 \times 10^6)(2 \times 10^{-6})$
f. 0.000002	$\frac{0.4 \times 10^5}{0.2 \times 10^{11}}$

4. Divide.

a. $\frac{6x^5 + 3x^4}{3x^4}$

$$2x + 1$$

b. $\frac{5x^2 + 28x - 10}{x + 6}$

$$\begin{array}{r} 5x - 2 + \frac{2}{x+6} \\ x+6 \overline{) 5x^2 + 28x - 10} \\ \underline{-(5x^2 + 30x)} \\ -2x - 10 \\ \underline{-(-2x - 12)} \\ 2 \end{array}$$