

# Algebra Workshop

## Worksheet 9

Name: \_\_\_\_\_

1. Simplify:

(a)  $x^3y^2x^4y$

(b)  $x(x^2y^3)^3$

(c)  $\frac{x^3y^2}{xy}$

(d)  $\frac{x^5y^4x^{-3}}{xy^3}$

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

(f)  $\frac{x^{1/2}}{x^{1/4}}$

(g)  $\sqrt{x^4y^2}$

(h)  $\frac{x^{2/3}}{x^{1/2}}$

2. Compute the following without using a calculator:

(a)  $3^5 \cdot 3^{-3}$

(b)  $\sqrt[3]{8}$

(c)  $5^0$

(d)  $9^{1/2}$

(e)  $2^{-1}$

(f)  $4^{-1/2}$

3. Use a calculator to compute the following. Give your answers as decimals to 2 decimal places.

(a)  $\sqrt[4]{30}$

(b)  $\sqrt[3]{4}$

(c)  $3^{4/5}$

(d)  $\sqrt{\sqrt{3}}$

4. Solve the following equations:

(a)  $x^4 = 10,000$

(b)  $x^3 = -8$

(c)  $3x^3 + 4 = 1$

(d)  $x^4 - 9 = 7$

5. Solve the following equations:

(a)  $\sqrt[4]{x} = 2$

(b)  $x^{1/3} = 4$

(c)  $\sqrt{x} + 3 = 7 - \sqrt{x}$

(d)  $x^{-1} = 3$

6. Express the following numbers in scientific notation, rounded to three digits:

(a) 3,936,432.567

(b) 0.0000457

(c) 367 million

(d) 1,235 trillion

7. Compute the following. Express the answer in scientific notation, rounded to three digits.

(a)  $(3.52 \times 10^4) \times (4.61 \times 10^3)$

(b)  $(6.41 \times 10^7) \times (5.98 \times 10^{-5})$

(c)  $\frac{7.89 \times 10^8}{4.78 \times 10^2}$

(d)  $(3.58 \times 10^{-5})^4$