

# [exponents]

1. Simplify

a.  $(3x^2)(2x^3)(5x^5)$   
 b.  $\frac{4x^7}{2x^5}$   
 c.  $(14a^2b^3)(7a^{-2}b^{-4})$

d.  $\frac{(6p^4q^2)^2}{(3p^2q^4)^3}$   
 e.  $\frac{2(ab^2c)^{-4}}{(a^2b^3c)^{-3}}$   
 f.  $\frac{a^{-1}b^2}{2a^{-3}b^4}$

2. Evaluate

a.  $3^{-3}$   
 b.  $\left(\frac{3}{4}\right)^2$   
 c.  $\left(\frac{3}{5}\right)^{-2}$

d.  $81^{\frac{3}{4}}$   
 e.  $5^{-3} \times 5^4$   
 f.  $2^{-1} + 3^{-1}$

3. Write in exponential form

a.  $\frac{1}{x^2}$   
 b.  $\sqrt{x^3}$   
 c.  $\frac{1}{\sqrt{x^5}}$

d.  $\frac{3}{x^{-4}}$   
 e.  $7\sqrt[3]{x}$   
 f.  $\frac{-5}{\sqrt[5]{x^2}}$

4. Put in radical form

a.  $8x^{\frac{2}{3}}$

b.  $100x^{-\frac{5}{2}}$

5. Evaluate

a.  $\sqrt{36a^4b^{-12}}$

b.  $(27x^{12}y^{-9})^{\frac{2}{3}}$

6. Solve

$$\left(2x^{-\frac{1}{4}}\right)^4 \left(2x^{-\frac{2}{3}}\right)^{-3} = \frac{1}{8^{-2}x^{-1}} \left(\left(x^{\frac{2}{3}}\right)^{\frac{3}{2}}\right)^{-1}$$

7. Simplify

a.  $(3x^7y^4)(-2x^3y^2)$   
 b.  $\frac{10x^6y^2}{-5x^4y^{-2}}$   
 c.  $\frac{(2x^2y^3)^3 \cdot (5x^{10}y^4)}{10^{-2}y^7}$

worksheets