

Eleventh Set of Homework for Math 05

The answers

1 Exponents

1. Simplify and give your answer using positive exponents:

$$(a) x^2 y^{-4} \quad \frac{x^2}{y^4}$$

$$(b) (3x^3 y^{-2})^3 \quad \frac{27x^9}{y^6}$$

$$(c) (-2x^{-3} y^{-1} w^2)^4 \quad -\frac{2w^2}{yx^3}$$

$$(d) (2x^4 y^{-4} z^{-3})^{-3} \quad \frac{y^{12} z^9}{8x^{12}}$$

$$(e) (-3x^2 y^{-5})^{-3} \quad -\frac{y^{15}}{27x^6}$$

$$(f) \frac{4x^{-3} y^4}{12x^5 y^{-4}} \quad \frac{y^8}{3x^8}$$

$$(g) \left(\frac{x^3 y^4 z^{-7}}{x^4 y^{-1} z^{-6}} \right)^2 \quad \frac{y^{10}}{x^2 z^2}$$

$$(h) \left(\frac{18x^{-5} y^{-4} z^{10}}{4x^{-3} y^{-2} z^8} \right)^{-3} \quad \frac{8x^6 y^6}{729z^6}$$

2 Scientific Notation

1. Write the following in scientific notation:

$$(a) 23.45 \quad 2.345 \times 10$$

$$(b) 3600000 \quad 3.6 \times 10^6$$

$$(c) 0.00000345 \quad 3.45 \times 10^{-6}$$

$$(d) 0.01111 \quad 1.1 \times 10^{-2}$$

$$(e) 24 \times 10^8 \quad 2.4 \times 10^9$$

$$(f) 24 \times 10^{-9} \quad 2.4 \times 10^{-8}$$

$$(g) 0.79 \times 10^{-5} \quad 7.9 \times 10^{-6}$$

$$(h) 124.27 \times 10^6 \quad 1.247 \times 10^8$$

2. Calculate and give your answer using scientific notation:

$$(a) (5 \times 10^6) (3 \times 10^{-3}) \quad 1.5 \times 10^4$$

$$(b) (1.2 \times 10^2) (3.4 \times 10^5) \quad 4.08 \times 10^7$$

$$(c) (1.7 \times 10^{-5}) (6.3 \times 10^8) \quad 1.071 \times 10^4$$

$$(d) \frac{3 \times 10^{-3}}{5 \times 10^{-6}} \quad 6 \times 10^2$$

$$(e) \frac{18 \times 10^5}{24 \times 10^{10}} \quad 7.5 \times 10^{-6}$$

$$(f) \frac{(24 \times 10^5) (2 \times 10^3)}{3 \times 10^{-4}} \quad 1.6 \times 10^{13}$$

$$(g) \frac{(20 \times 10^{-7}) (6 \times 10^9)}{(8 \times 10^{-3}) (3 \times 10^5)} \quad 5$$