

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

Score: \_\_\_\_\_

<b>Exponent Rules</b>
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Algebra: M1

Use laws of exponents and simplify. Write your answers in positive exponents.

1)  $\left(\frac{x^7y^3}{x^2y}\right)^4$

2)  $(a^3b)^4(ab^6)^2$

3)  $\left(\frac{8m^5n^7}{2mn^5}\right)^3$

4)  $(5p^3q^2)(2p^4q)^2$

$^{-3}c^{-7})^{-2}(b^3c^{-2})^{-3}$

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7)  $\left(\frac{6lm^2}{3l^3m^6}\right)^2$

$^{-3}v^5)\left(\frac{9u^{-5}v^2}{3u^6v^{-8}}\right)$

10)  $\frac{8v^5w^{-6}}{(2v^{-3}w^2)(v^6w)}$

$^{-2}m^3)(2m^{-5})^2(lm^4)^{-3}$

13)  $(4u^2v)^{-3}(u^{-5}v^6)^2(u^{-8}w^{-9})$

14)  $\left(\frac{6x^{-3}y^5}{2xy^2z^6}\right)^5$

15)  $\frac{(2a^{-3}b)(6b^5c^{-7})}{4c^{-9}}$

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

Answer key

Score: \_\_\_\_\_

## Exponent Rules

Algebra: M1

$$1) \left(\frac{x^7 y^3}{x^2 y}\right)^4$$

$$= x^{20} y^8$$

$$2) (a^3 b)^4 (ab^6)^2$$

$$= a^{14} b^{16}$$

$$3) \left(\frac{8m^5 n^7}{2mn^5}\right)^3$$

$$= 64m^{12} n^6$$

$$4) (5p^3 q^2)(2p^4 q)^2$$

$$= 20p^{11} q^4$$

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$$^{-3}c^{-7})^{-2}(b^3 c^{-2})^{-3}$$

$$\frac{c^{20}}{b^3}$$

$$7) \left(\frac{6lm^2}{3l^3 m^6}\right)^2$$

$$= \frac{4}{l^4 m^8}$$

$$^{-3}v^5) \left(\frac{9u^{-5} v^2}{3u^6 v^{-8}}\right)$$

$$\frac{3v^{15}}{u^{14}}$$

$$10) \frac{8v^5 w^{-6}}{(2v^{-3} w^2)(v^6 w)}$$

$$= \frac{4v^2}{w^9}$$

$$^{-2}m^3)(2m^{-5})^2(lm^4)^{-3}$$

$$\frac{12}{l^{15} m^{19}}$$

$$13) (4u^2 v)^{-3}(u^{-5} v^6)^2(u^{-8} w^{-9})$$

$$= \frac{v^9}{64u^{24} w^9}$$

$$14) \left(\frac{6x^{-3} y^5}{2xy^2 z^6}\right)^5$$

$$= \frac{243y^{15}}{x^{20} z^{30}}$$

$$15) \frac{(2a^{-3} b)(6b^5 c^{-7})}{4c^{-9}}$$

$$= \frac{3b^6 c^2}{a^3}$$