Name: _____ Score:

Exponent Rules

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) $(5p^3q^2)(2p^4q)^2$		$^{-3}c^{-7})^{-2}(b^3c^{-2})^{-3}$
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) $\left(\frac{x^7y^3}{x^2y}\right)^4$

$= x^{20}y^8$

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

$\frac{12}{l^5m^{19}}$

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

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

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

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

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

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