

Key

Powers of Products and Quotients

Simplify. Your answer should contain only positive exponents.

1) $(3a^2)^3$
 $27a^6$

2) $(2n^4)^4$
 $16n^{16}$

3) $(3x^4)^4$
 $81x^{16}$

4) $(6b^2)^2$
 $36b^4$

5) $(7y^4)^2$
 $49y^8$

6) $(3ab^4)^4$
 $81a^4b^{16}$

7) $(2x^4y^4)^3$
 $8x^{12}y^{12}$

8) $(5mn^3)^3$
 $125m^3n^9$

9) $(x^2y^2)^2$
 x^4y^4

10) $(6yx^4)^2$
 $36y^2x^8$

11) $(u^4v^3)^2$
 u^8v^6

12) $(2x^4y^4)^4$
 $16x^{16}y^{16}$

13) $(3x^2 \cdot 2x^2)^2$
 $36x^8$

14) $(2p^3 \cdot 2p)^2$
 $16p^8$

15) $(4n^3 \cdot n^2)^2$
 $16n^{10}$

16) $(3x \cdot 2x)^2$
 $36x^4$

17) $(4x^4 \cdot x^4)^3$
 $64x^{24}$

18) $(4n^4 \cdot n)^2$
 $16n^{10}$

Name : _____

Score : _____

Teacher : _____

Date : _____

(Key)

Powers of Quotients

Simplify the exponents.

$$1) \left(\frac{8hr^4}{9h^3r^5} \right)^3 = \frac{8^3}{9^3h^6r^3}$$
$$\frac{512}{729h^6r^3}$$

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

$$2) \left(\frac{3c^3}{4c^6} \right)^2$$
$$\frac{9}{16c^6}$$

$$8) \left(\frac{4n}{3n^6} \right)^3 = \frac{4^3}{3^3n^{15}}$$
$$\frac{64}{27n^{15}}$$

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

$$9) \left(\frac{5^5}{5} \right)^2$$
$$5^8$$

$$4) \left(\frac{2g^3k^2}{6gk^4} \right)^2$$
$$\frac{g^4}{9k^4}$$

$$10) \left(\frac{8h^4}{9h^3w^2} \right)^3 = \frac{8^3h^3}{9^3w^6}$$
$$\frac{512h^3}{729w^6}$$

$$5) \left(\frac{yb}{5y^3b^4} \right)^3 = \frac{1}{5^3y^6b^9}$$
$$\frac{1}{125y^6b^9}$$

$$11) \left(\frac{5k^2}{3k} \right)^2 = \frac{5^2k^2}{3^2}$$
$$\frac{25k^2}{9}$$

$$6) \left(\frac{d^6}{d^4} \right)^2$$
$$d^4$$

$$12) \left(\frac{3n^2k^3}{7n^4k^5} \right)^3 = \frac{3^3}{7^3n^6k^6}$$
$$\frac{27}{343n^6k^6}$$

