

Name: _____

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Quotient Rule

Use quotient rule and simplify. Write your answers in positive exponents.

1) $\frac{4s^{-3}t^{-4}}{8s^6t^8}$

2) $\frac{3u^8v^4}{7u^5v^2}$

3) $\frac{9p^5q^{-2}}{5p^{-3}q^6}$

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

5) $\frac{4l^9m^4}{9l^3m^2}$

6) $\frac{r^{-4}s^5}{r^{-8}s^{-9}}$

7) $\frac{9v^{-10}w^4}{7v^3w^{10}}$

8) $\frac{3g^{-9}h^4}{8g^{-6}h^8}$

9) $\frac{5m^{-7}n^5}{3m^{-4}n^{-5}}$

10) $\frac{2k^5l^{-10}}{8k^9l^{-5}}$

11) $\frac{8b^{-6}c^{-5}}{9b^{-8}c^{-2}}$

12) $\frac{7q^5r^{-4}}{5q^6r^7}$

13) $\frac{8^w8^6}{8^{-w}8^2}$

14) $\frac{8w^4x^2}{3w^{-5}x^{-10}}$

15) $\frac{y^4z^{10}}{yz^5}$

16) $\frac{8cd^9}{2c^{-8}d^4}$

17) $\frac{4mn^9}{m^6n}$

18) $\frac{p^{-6}q^2}{8p^{10}q^{-5}}$

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Answers

$$1) \frac{4s^{-3}t^{-4}}{8s^6t^8}$$
$$= \frac{1}{2s^9t^{12}}$$

$$2) \frac{3u^8v^4}{7u^5v^2}$$
$$= \frac{3u^3v^2}{7}$$

$$3) \frac{9p^5q^{-2}}{5p^{-3}q^6}$$
$$= \frac{9p^8}{5q^8}$$

$$4) \frac{7a^{-3}b^9}{2a^2b^{-5}}$$
$$= \frac{7b^{14}}{2a^5}$$

$$5) \frac{4l^9m^4}{9l^3m^2}$$
$$= \frac{4l^6m^2}{9}$$

$$6) \frac{r^{-4}s^5}{r^{-8}s^{-9}}$$
$$= r^4s^{14}$$

$$7) \frac{9v^{-10}w^4}{7v^3w^{10}}$$
$$= \frac{9}{7v^{13}w^6}$$

$$8) \frac{3g^{-9}h^4}{8g^{-6}h^8}$$
$$= \frac{3}{8g^3h^4}$$

$$9) \frac{5m^{-7}n^5}{3m^{-4}n^{-5}}$$
$$= \frac{5n^{10}}{3m^3}$$

$$10) \frac{2k^5l^{-10}}{8k^9l^{-5}}$$
$$= \frac{1}{4k^4l^5}$$

$$11) \frac{8b^{-6}c^{-5}}{9b^{-8}c^{-2}}$$
$$= \frac{8b^2}{9c^3}$$

$$12) \frac{7q^5r^{-4}}{5q^6r^7}$$
$$= \frac{7}{5qr^{11}}$$

$$13) \frac{8^w8^6}{8^{-w}8^2}$$
$$= 8^{2w+4}$$

$$14) \frac{8w^4x^2}{3w^{-5}x^{-10}}$$
$$= \frac{8w^9x^{12}}{3}$$

$$15) \frac{y^4z^{10}}{yz^5}$$
$$= y^3z^5$$

$$16) \frac{8cd^9}{2c^{-8}d^4}$$
$$= 4c^9d^5$$

$$17) \frac{4mn^9}{m^6n}$$
$$= \frac{4n^8}{m^5}$$

$$18) \frac{p^{-6}q^2}{8p^{10}q^{-5}}$$
$$= \frac{q^7}{8p^{16}}$$