

Name: _____

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Product Rule

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

1) $(4g^{-6}h)(5g^8h^9)$

2) $6xy^2z \cdot 3yz^2$

3) $2rs^{-6} \cdot s^{-4}t \cdot 3t^{-8}$

4) $3uv^4 \cdot 7u^{-2}v \cdot 9v^6$

5) $(5p^{-8}q)(3p^4)(7pq^6)$

6) $8ab^3c \cdot 3bc^4$

7) $(2s^{-7}t)(8st^4)$

8) $5xy^{-4}z^3 \cdot 9xy^5z$

9) $8pq^{-4} \cdot q^6r \cdot 4r^{-3}$

10) $3bc \cdot 6b^2c \cdot 2c^{-8}$

11) $4qr \cdot rs \cdot qs^{-5}$

12) $(5yz)(3y^7)(9z^9)$

13) $8x^4y \cdot xy \cdot 3y^6$

14) $6pq \cdot 8qr^3 \cdot pr$

15) $(7mn)(2n^{-4})(6m^{-5})$

16) $7ab^6 \cdot ab \cdot 8b^{-3}$

17) $(9c^{-5}d)(3d)(4cd^{-7})$

18) $5klm \cdot 3lm^{-6} \cdot 2km$

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Answers

$$1) (4g^{-6}h)(5g^8h^9) \\ = 20g^2h^{10}$$

$$2) 6xy^2z \cdot 3yz^2 \\ = 18xy^3z^3$$

$$3) 2rs^{-6} \cdot s^{-4}t \cdot 3t^{-8} \\ = \frac{6r}{s^{10}t^7}$$

$$4) 3uv^4 \cdot 7u^{-2}v \cdot 9v^6 \\ = \frac{189v^{11}}{u}$$

$$5) (5p^{-8}q)(3p^4)(7pq^6) \\ = \frac{105q^7}{p^3}$$

$$6) 8ab^3c \cdot 3bc^4 \\ = 24ab^4c^5$$

$$7) (2s^{-7}t)(8st^4) \\ = \frac{16t^5}{s^6}$$

$$8) 5xy^{-4}z^3 \cdot 9xy^5z \\ = 45x^2y^1z^4$$

$$9) 8pq^{-4} \cdot q^6r \cdot 4r^{-3} \\ = \frac{32pq^2}{r^2}$$

$$10) 3bc \cdot 6b^2c \cdot 2c^{-8} \\ = \frac{36b^3}{c^6}$$

$$11) 4qr \cdot rs \cdot qs^{-5} \\ = \frac{4q^2r^2}{s^4}$$

$$12) (5yz)(3y^7)(9z^9) \\ = 135y^8z^{10}$$

$$13) 8x^4y \cdot xy \cdot 3y^6 \\ = 24x^5y^8$$

$$14) 6pq \cdot 8qr^3 \cdot pr \\ = 48p^2q^2r^4$$

$$15) (7mn)(2n^{-4})(6m^{-5}) \\ = \frac{84}{m^4n^3}$$

$$16) 7ab^6 \cdot ab \cdot 8b^{-3} \\ = 56a^2b^4$$

$$17) (9c^{-5}d)(3d)(4cd^{-7}) \\ = \frac{108}{c^4d^5}$$

$$18) 5klm \cdot 3lm^{-6} \cdot 2km \\ = \frac{30k^2l^2}{m^4}$$