

For the questions below, show your answer with **POSITIVE** exponents only!

以下の指数の四則計算を行いなさい。答えは正の指数で答えること。

Pattern 1: Addition of the exponents

1. $a^2 \cdot a^5 =$

2. $3b^4 \cdot 2b^2 =$

3. $5x^3 \cdot -2x^2 =$

4. $c^6 \cdot c^{-4} =$

5. $d^3 \cdot d^{-7} =$

6. $2e \cdot 4f^2 \cdot 5e^3 \cdot f^6 =$

7. $-3x^2 \cdot y^3 \cdot -2x^4 \cdot 5y =$

8. $3g^6 \cdot h^4 \cdot 4g^{-3} \cdot 5h^{-6} =$

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Pattern 2: Subtraction of the exponents

$$1. \frac{i^4}{i^2} =$$

$$2. \frac{6j^3}{2j} =$$

$$3. \frac{8x^3}{-4x} =$$

$$4. \frac{k^8}{k^{-2}} =$$

$$5. \frac{l^{-3}}{l^5} =$$

$$6. \frac{m^{-4}}{n^{-3}} =$$

$$7. \frac{o^{-5}}{o^{-2}} =$$

$$8. \frac{p^{-3}}{p^{-6}} =$$

$$9. \frac{8q^4 \cdot 9r^6}{2q^2 \cdot 3r^2} =$$

$$10. \frac{10s^3 \cdot 3t^2 \cdot 6u^5}{5s \cdot 9t^6 \cdot 3u^3} =$$

$$11. \frac{6v^5 \cdot -4w^2 \cdot 9x^{-3}}{-3v^{-2} \cdot 2w^5 \cdot 3x^2} =$$

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Pattern 3: Multiplication of the exponents

1. $(y^2)^5 =$

2. $(2z^4)^3 =$

3. $(-3a^3)^2 =$

4. $(4b^{-2})^3 =$

5. $(5c^4)^{-2} =$

6. $(2d^3 \cdot 3e^4)^2 =$

7. $(5f^4 \cdot -2g^5)^2 =$

8. $(2h^2 \cdot 3i^3)^{-3} =$

9. $\left(\frac{14j^4}{7j^2}\right)^3 =$

10. $\left(\frac{5k^3}{-10k^6}\right)^2 =$

11. $\left(\frac{12l^3 \cdot 5m^2}{4l \cdot 10m^3}\right)^2 =$

12. $\left(\frac{-4n^{-3} \cdot 6p^3}{8n^2 \cdot -2p}\right)^2 =$