

Matching...

F	Power of a Power	A:	Keep the base, add the exponents.
A	Product of Powers	B:	Find the power of each factor, and multiply.
C	Quotient of Powers	C:	Keep the base, subtract the exponents.
B	Power of a Product	D:	Find the power of the numerator, find the power of the denominator, and divide.
D	Power of a Quotient	F:	Multiply the exponents.

9. $2x^3 \cdot (-3x)^2 =$

$$2x^3 \cdot (-3)^2 \cdot x^2$$

$$2x^3 \cdot 9 \cdot x^2$$

$$\underline{\underline{18x^5}}$$

12. $4^{-2} =$

$$\frac{1}{4^2}$$

$$= \underline{\underline{\frac{1}{16}}}$$

10. $(abc^2)^3 \cdot ab =$

$$\underline{a^3} \underline{b^3} \underline{c^6} \cdot \underline{a} \underline{b}$$

$$\underline{\underline{a^4 b^4 c^6}}$$

13. $\frac{1}{4^{-4}} =$

$$4^4 = \underline{\underline{256}}$$

16. $x^{-2} y^4 =$

$$\frac{1}{x^2} \cdot y^4$$

$$= \underline{\underline{\frac{y^4}{x^2}}}$$

Use the Quotient of Powers Property to simplify

17. $\frac{7^6}{7^9} =$ 7^{6-9}
 $= 7^{-3}$
 $= \frac{1}{7^3} = \frac{1}{343}$

18. $\frac{a^5}{a^2} =$

20. $x^3 \cdot \frac{1}{x^2} =$

$$\frac{x^3}{x^2} = x^{3-2}$$
$$= \underline{\underline{x}}$$

21. $\left(\frac{-}{-} \right)$

22. $\left(\frac{x}{y} \right)^5 = \frac{x^5}{y^5}$

25. $\frac{6x^2y^2}{xy^3} \cdot \frac{(4x^2y)^2}{xy^2} =$

$$\frac{6x^2y^2}{xy^3} \cdot \frac{16x^4y^2}{xy^2}$$

$$= \frac{96x^6y^4}{x^2y^5}$$

$$= 96x^{6-2}y^{4-5} = 96x^4y^{-1}$$

$$= \frac{96x^4}{y}$$

26. $\frac{4xy}{2x^{-1}y^{-3}} \cdot \left(\frac{2xy^2}{3xy} \right)^{-2}$

26. $\frac{4xy}{2x^{-1}y^{-3}} \cdot \left(\frac{2xy^2}{3xy} \right)^{-2} =$

$$\begin{aligned}
 & \frac{4xy}{2x^{-1}y^{-3}} \cdot \frac{2^{-2}x^{-2}y^{-4}}{3^{-2}x^{-2}y^{-2}} \\
 &= \frac{4xy \cancel{x} \cancel{y^3}}{2} \cdot \frac{3^2 \cancel{x^2} \cancel{y^2}}{2^2 \cancel{x^2} \cancel{y^4}} \\
 &= \frac{4x^2y^4}{2} \cdot \frac{9x^2y^2}{4x^2y^4} = \frac{9x^4y^6}{2x^2y^4} \\
 &= \frac{9}{2} x^{4-2} y^{6-4} = \frac{9x^2y^2}{2}
 \end{aligned}$$

23.

$$\frac{4x^3y^3}{2xy} \cdot \frac{5xy^2}{2y} =$$

$$\frac{\cancel{20}x^4y^5}{\cancel{4}xy^2}$$

$$= 5x^{4-1}y^{5-2}$$

$$= \underline{\underline{5x^3y^3}}$$

24.

$$\frac{36a^8b^2}{ab} \cdot \frac{ab^2}{6} =$$

$$\frac{\cancel{63}6a^9b^4}{\cancel{6}ab}$$

$$= 6a^{9-1}b^{4-1}$$

$$= \underline{\underline{6a^8b^3}}$$

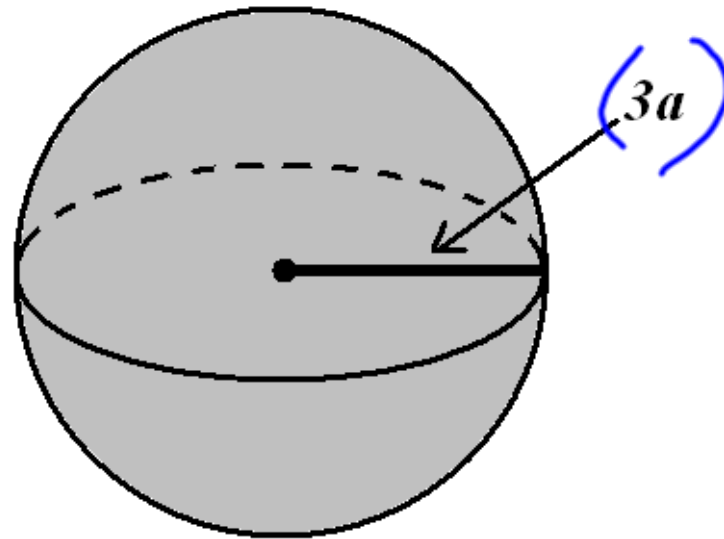
Bonus:

The Volume V of a sphere is given by the formula

$$V = \frac{4}{3}\pi r^2, \text{ where } r \text{ is the radius.}$$

What is the Volume of the sphere in terms of a ?

Leave π as a variable. Do not change it to 3.14!



$$\begin{aligned} V &= \frac{4}{3}\pi (3a)^2 = \frac{4}{3}\pi 3^2 a^2 = \frac{4}{3}\pi \cancel{3}^3 \cancel{1} a^2 \\ &= \underline{\underline{12\pi a^2}} \end{aligned}$$

Test Corrections Need to
Be done ... Stapled on
the Back. Everything
Turned Back in...

