

Are You Ready? Possible Solutions

1. a. **Step 1:** Determine a common denominator (LCD).
Step 2: Rewrite each fraction as an equivalent fraction with the common denominator as the denominator.
Step 3: Add or subtract the numerators.
- b. **Step 1:** Multiply the numerators together.
Step 2: Multiply the denominators together.
Step 3: Simplify the result.

You could also simplify each fraction first and then follow steps 1 and 2.

$$2. \quad a. \quad \frac{4}{3} + \frac{2}{3} = \frac{6}{3} \\ = 2$$

$$b. \quad \frac{3}{4} - \frac{1}{2} = \frac{3}{4} - \frac{2}{4} \\ = \frac{1}{4}$$

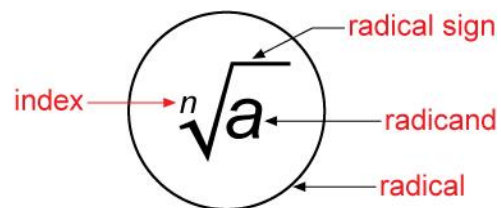
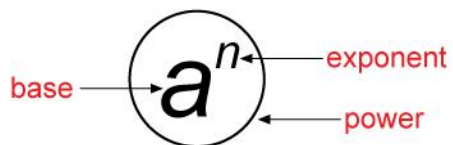
$$c. \quad \frac{1}{4} \times \frac{2}{3} = \frac{1 \times 2}{4 \times 3} \\ = \frac{2}{12} \\ = \frac{1}{6}$$

$$d. \quad \frac{12}{25} \times \frac{15}{8} = \frac{12 \times 15}{25 \times 8} \\ = \frac{180}{200} \\ = \frac{9}{10}$$

$$3. \quad V = \frac{4\pi r^3}{3}$$

$$4. \quad V = \frac{4\pi r^3}{3} \\ 905 = \frac{4\pi r^3}{3} \\ 905 \cdot 3 = \left(\frac{4\pi r^3}{3} \right) \cdot 3 \\ 2715 = 4\pi r^3 \\ \frac{2715}{4\pi} = \frac{4\pi r^3}{4\pi} \\ 216.05 = r^3 \\ \sqrt[3]{216.05} = \sqrt[3]{r^3} \\ r \approx 6 \text{ mm}$$

5.



6. a. $\left(\frac{x}{y}\right)^{-3} = \left(\frac{y}{x}\right)^3$
 $= \frac{y^3}{x^3}$

b. $4a^{8 \cdot 2} 3a^{-1 \cdot -4} = 4^2 a^{8 \times 2} 3^{-4} a^{-1 \times -4}$
 $= 16a^{16} \left(\left(\frac{1}{3}\right)^4 a^4 \right)$
 $= 16 \times \frac{1^4}{3^4} \times a^{16+4}$
 $= \frac{16}{81} a^{20}$

c. $5n^0 = 1$ (zero exponent law)

d. $5n^0 = 5$ (Since the exponent only applies to the base, n .)