

Day 7 - Multiplying Radicals with Variables - Practice

Simplify the following expressions:

$$\begin{aligned} 1. \sqrt{3} \cdot 2\sqrt{6} &= 2\sqrt{18} \\ &= 2 \cdot 3 \cdot \sqrt{2} \\ &= \boxed{6\sqrt{2}} \end{aligned}$$

$$\begin{aligned} 2. 4\sqrt{5} \cdot 2\sqrt{5} &= 8\sqrt{25} \\ &= 8 \cdot 5 \\ &= \boxed{40} \end{aligned}$$

$$\begin{aligned} 3. -3\sqrt{2} \cdot 7\sqrt{36} &= -21 \cdot 6\sqrt{2} \\ &= \boxed{-126\sqrt{2}} \end{aligned}$$

$$\begin{aligned} 4. 3\sqrt{x} \cdot 2\sqrt{x^2} &= 6\sqrt{x^3} \\ &= \boxed{6x\sqrt{x}} \end{aligned}$$

$$\begin{aligned} 5. \sqrt{18a^2} \cdot 4\sqrt{3a^2} &= 4\sqrt{54a^4} \\ &= 4 \cdot 3 \cdot a^2 \sqrt{6} \\ &= \boxed{12a^2\sqrt{6}} \end{aligned}$$

$$\begin{aligned} 6. \sqrt{50x} \cdot -4\sqrt{4x} &= -4\sqrt{200x^2} \\ &= -4 \cdot 10 \cdot x \sqrt{2} \\ &= \boxed{-40x\sqrt{2}} \end{aligned}$$

$$\begin{aligned} 7. -3\sqrt{7x^3} \cdot 6\sqrt{7x^2} &= -18\sqrt{49x^5} \\ &= -18 \cdot 7x^2 \sqrt{x} \\ &= \boxed{-126x^2\sqrt{x}} \end{aligned}$$

$$\begin{aligned} 8. \sqrt{xy} \cdot \sqrt{x^2y^3} &= \sqrt{x^3y^4} \\ &= \boxed{x \cdot y^2 \sqrt{x}} \end{aligned}$$

$$\begin{aligned} 9. x\sqrt{x^2yz} \cdot xy\sqrt{yz^3} &= x^2y\sqrt{x^2y^2z^4} \\ &= x^2 \cdot y \cdot x \cdot y \cdot z^2 \\ &= \boxed{x^3y^2z^2} \end{aligned}$$