

# 1.5 Homework Help

Pg. 53: 1-25

$$12. \quad 2\sqrt[3]{40} = 2(2)\sqrt[3]{5}$$

$$= \boxed{4\sqrt[3]{5}}$$

$\begin{matrix} & \wedge & & \wedge & \\ & 4 & & 10 & \\ & \wedge & & \wedge & \\ 2 & & 2 & & 2 & 5 \\ \circlearrowleft & & & & \circlearrowright \end{matrix}$

$$18. \quad 7\sqrt[3]{96m^3} = 7(2)(m)\sqrt[3]{2 \cdot 2 \cdot 3}$$

$$= \boxed{14m\sqrt[3]{12}}$$

$\begin{matrix} & \wedge & & \wedge & & \wedge & & \wedge & \\ & 2 & & 4 & & 8 & & m & m & m \\ & & & \wedge & & \wedge & & \wedge & & \wedge \\ & & & 2 & & 2 & & 4 & & \\ & & & & & & & \wedge & & \\ & & & & & & & 2 & & 1 & 2 \\ & & & & & & & \wedge & & \wedge & \\ & & & & & & & 2 & & 6 & \\ & & & & & & & & & \wedge & \\ & & & & & & & & & 2 & 3 \end{matrix}$

$$22. \quad \sqrt{128x^3y^3} = 2 \cdot 2 \cdot 2 |x| |y| \sqrt{2 \cdot x \cdot y}$$

$$= \boxed{8|x||y|\sqrt{2xy}} \quad \text{or} \quad \boxed{8|xy|\sqrt{2xy}}$$

$\begin{matrix} & \wedge & & \wedge & & \wedge & & \wedge & & \wedge & \\ & 2 & & 6 & & x & x & x & & y & y & y \\ & & & \wedge & & \wedge & & \wedge & & \wedge & \\ & & & 8 & & 8 & & & & & \\ & & & \wedge & & \wedge & & & & & \\ & & & 4 & & 2 & & 2 & & 4 & \\ & & & \wedge & & \wedge & & \wedge & & \wedge & \\ & & & 2 & & 2 & & & & & \\ \circlearrowleft & & & & & & & & & & \circlearrowright \end{matrix}$

Pg. 63

$$3. \quad -\sqrt{12} + 3\sqrt{3} = -2\sqrt{3} + 3\sqrt{3} = \boxed{\sqrt{3}}$$

$\begin{matrix} & \wedge & \\ & 4 & 3 \\ \circlearrowleft & & \end{matrix}$

$$8. \quad -3\sqrt{3} - \sqrt{8} - 3\sqrt{3}$$

$$= -3\sqrt{3} - 2\sqrt{2} - 3\sqrt{3} \quad \text{* common terms}$$

$$= \boxed{-6\sqrt{3} - 2\sqrt{2}}$$

$\begin{matrix} & \wedge & \\ & 4 & 2 \\ \circlearrowleft & & \end{matrix}$

$$12. \quad \sqrt[3]{3} \cdot \sqrt[3]{9} = \sqrt[3]{3 \cdot 9} = \boxed{3}$$

$\begin{matrix} & \wedge & \\ & 3 & 3 \\ \circlearrowleft & & \end{matrix}$

$$18. \quad \sqrt{3}(-5\sqrt{10} + \sqrt{6})$$

$$= -5\sqrt{3 \cdot 10} + \sqrt{3 \cdot 6}$$

$$= -5\sqrt{30} + \sqrt{18}$$

$$= \boxed{-5\sqrt{30} + 3\sqrt{2}}$$

$\begin{matrix} & \wedge & & \wedge & \\ & 3 & & 6 & \\ & \wedge & & \wedge & \\ & 10 & & 3 & \\ & \wedge & & \wedge & \\ & 5 & & 2 & \\ \circlearrowleft & & & & \circlearrowright \end{matrix}$

$$25. \quad (2 + \sqrt{5})(2 - \sqrt{5})$$

$$= 4 - 2\sqrt{5} + 2\sqrt{5} - \sqrt{25}$$

$$= 4 - \sqrt{25}$$

$$= 4 - 5 = \boxed{-1}$$

$$29. \quad \sqrt[4]{3}$$

$$= \sqrt{3^{\frac{1}{4}}} = (3^{\frac{1}{4}})^{\frac{1}{2}}$$

$$= \boxed{3^{\frac{1}{8}}}$$