

### 6.3 Practice Form G

#1, 4, 7, 10, 11, 13, 15, 19, 22, 28, 30, 37, 40, 41

$$\textcircled{1} 9\sqrt{3} + 2\sqrt{3} = \boxed{11\sqrt{3}}$$

$$\textcircled{4} 14\sqrt[3]{xy} - 3\sqrt[3]{xy} = \boxed{11\sqrt[3]{xy}}$$

$$\textcircled{7} \sqrt{3x} - 2\sqrt{3x} = \boxed{-\sqrt{3x}}$$

$$\begin{aligned} \textcircled{10} 3\sqrt{3a} + 2\sqrt{50} \\ 3\sqrt{16}\sqrt{a} + 2\sqrt{25}\sqrt{a} \\ 3 \cdot 4\sqrt{a} + 2 \cdot 5\sqrt{a} \\ 12\sqrt{a} + 10\sqrt{a} = \boxed{22\sqrt{a}} \end{aligned}$$

$$\begin{aligned} \textcircled{11} \sqrt{200} - \sqrt{7a} \\ \sqrt{100}\sqrt{2} - \sqrt{36}\sqrt{a} \\ 10\sqrt{2} - 6\sqrt{a} = \boxed{4\sqrt{a}} \end{aligned}$$

$$\begin{aligned} \textcircled{13} 2\sqrt[4]{48} + 3\sqrt[4]{243} \\ 2\sqrt[4]{16}\sqrt[4]{3} + 3\sqrt[4]{81}\sqrt[4]{3} \\ 2 \cdot 2\sqrt[4]{3} + 3 \cdot 3\sqrt[4]{3} \\ 4\sqrt[4]{3} + 9\sqrt[4]{3} = \boxed{13\sqrt[4]{3}} \end{aligned}$$

$$\begin{aligned} \textcircled{15} \sqrt[3]{250} - \sqrt[3]{54} \\ \sqrt[3]{125}\sqrt[3]{2} - \sqrt[3]{27}\sqrt[3]{a} \\ 5\sqrt[3]{2} - 3\sqrt[3]{a} = \boxed{2\sqrt[3]{a}} \end{aligned}$$

$$\begin{aligned} \textcircled{19} (1 - \sqrt{5})(2 - \sqrt{5}) &= 2 - \sqrt{5} - 2\sqrt{5} + \sqrt{25} \\ &= 2 - 3\sqrt{5} + 5 = \boxed{7 - 3\sqrt{5}} \end{aligned}$$

$$\begin{aligned} \textcircled{22} (4 - 2\sqrt{3})^2 &= (4 - 2\sqrt{3})(4 - 2\sqrt{3}) = 16 - 8\sqrt{3} - 8\sqrt{3} + 4\sqrt{9} \\ &= 16 - 16\sqrt{3} + 4(3) \\ &= \boxed{28 - 16\sqrt{3}} \end{aligned}$$

$$\textcircled{28} (3\sqrt{2} - 9)(3\sqrt{2} + 9) = 9\sqrt{4} + 27\sqrt{2} - 27\sqrt{2} - 81$$

$$9(2) - 81$$

$$18 - 81 = \boxed{-63}$$

$$\textcircled{29} (5\sqrt{3} + \sqrt{2})(5\sqrt{3} - \sqrt{2}) = 25\sqrt{9} - 5\sqrt{6} + 5\sqrt{6} - \sqrt{4}$$

$$25 \cdot 3 - 2$$

$$75 - 2 = \boxed{73}$$

$$\textcircled{33} \sqrt{28} + 4\sqrt{63} - 2\sqrt{7}$$

$$\sqrt{4\sqrt{7}} + 4\sqrt{9\sqrt{7}} - 2\sqrt{7}$$

$$2\sqrt{7} + 2 \cdot 3\sqrt{7} - 2\sqrt{7}$$

$$2\sqrt{7} + 6\sqrt{7} - 2\sqrt{7} = \boxed{6\sqrt{7}}$$

$$\textcircled{40} 4\sqrt[3]{81} + 2\sqrt[3]{72} - 3\sqrt[3]{24}$$

$$4\sqrt[3]{27\sqrt{3}} + 2\sqrt[3]{8\sqrt{9}} - 3\sqrt[3]{8\sqrt{3}}$$

$$4 \cdot 3\sqrt[3]{3} + 2 \cdot 2\sqrt[3]{9} - 3 \cdot 2\sqrt[3]{3}$$

$$12\sqrt[3]{3} + 4\sqrt[3]{9} - 6\sqrt[3]{3}$$

$$\boxed{6\sqrt[3]{3} + 4\sqrt[3]{9}}$$

$$\textcircled{44} 3\sqrt{225x} + 5\sqrt{144x}$$

$$3 \cdot 15\sqrt{x} + 5 \cdot 12\sqrt{x}$$

$$45\sqrt{x} + 60\sqrt{x} = \boxed{105\sqrt{x}}$$

6.4 Prac G. # 1, 5, 8, 10, 13, 14, 15, 18, 23, 24, 25, 26, 28, 32, 36, 38, 45, 46, 49, 50,  
54, 56, 60

$$\textcircled{1} 125^{1/3} = \sqrt[3]{125} = \boxed{5}$$

$$\textcircled{5} (-5)^{1/3} \cdot (-5)^{1/3} \cdot (-5)^{1/3} = (-5)^1 = \boxed{-5}$$

$$\textcircled{8} 7^{1/2} \cdot 28^{1/2} = \sqrt{7} \cdot \sqrt{28} = \sqrt{196} = \boxed{14}$$

$$\textcircled{10} 12^{1/2} \cdot 27^{1/2} = \sqrt{12} \cdot \sqrt{27} = \sqrt{324} = \boxed{18}$$

$$\textcircled{13} x^{4/3} = \boxed{(\sqrt[3]{x})^4}$$

$$\textcircled{14} (2y)^{1/3} = \boxed{\sqrt[3]{2y}}$$

$$\textcircled{15} a^{1.5} = a^{3/2} = \boxed{\sqrt{a^3}}$$

$$\textcircled{18} (ab)^{1/4} = \boxed{\sqrt[4]{ab}}$$

$$\textcircled{23} \sqrt[3]{m} = \boxed{m^{1/3}}$$

$$\textcircled{24} \sqrt{5y} = (5y)^{1/2} = \boxed{5^{1/2} y^{1/2}}$$

$$\textcircled{25} \sqrt[3]{2y^2} = \boxed{2^{1/3} y^{2/3}}$$

$$\textcircled{26} (\sqrt[4]{b})^3 = \boxed{b^{3/4}}$$

$$\textcircled{28} \sqrt{(6a)^4} = (6a)^{4/2} = (6a)^2 = \boxed{36a^2}$$

$$\textcircled{32} (81^{1/4})^4 = 81^1 = \boxed{81}$$

$$\textcircled{36} 8^{2/3} = (\sqrt[3]{8})^2 = 2^2 = \boxed{4}$$

$$(38) x^{1/2} \cdot x^{1/3} = x^{3/6} \cdot x^{2/6} = \boxed{x^{5/6}}$$

$$(45) (3x^{1/2})(4x^{2/3}) = 12x^{1/2+2/3} = 12x^{3/6+4/6} = \boxed{12x^{7/6}}$$

$$(46) \frac{12y^{1/3}}{4y^{1/2}} = 3y^{1/3-1/2} = 3y^{2/6-3/6} = 3y^{-1/6} = \boxed{\frac{3}{y^{1/6}}}$$

$$(49) (a^{2/3}b^{-1/2})^{-6} = a^{-12/3}b^{4/2} = a^{-4}b^3 = \boxed{\frac{b^3}{a^4}}$$

$$(50) y^{2/5} \cdot y^{3/8} = y^{16/40} \cdot y^{15/40} = \boxed{y^{31/40}}$$

$$(54) (2x^{2/5})(6x^{1/4}) = 12x^{2/5+1/4} = 12x^{8/20+5/20} = \boxed{12x^{13/20}}$$

$$(56) \left(\frac{27x^6}{64y^4}\right)^{1/3} = \frac{27^{1/3}x^2}{64^{1/3}y^{4/3}} = \frac{\sqrt[3]{27}x^2}{\sqrt[3]{64}y^{4/3}} = \boxed{\frac{3x^2}{4y^{4/3}}}$$

$$(60) \left(\frac{x^{1/3}y}{x^{2/3}y^{-1/2}}\right)^2 = \frac{x^{2/3}y^2}{x^{4/3}y^{-1}} = x^{2/3-4/3}y^{2-(-1)} = x^{-2/3}y^3 = \boxed{\frac{y^3}{x^{2/3}}}$$