

Alg 2: Homework 29

$$(1) 8\sqrt{6} - 1\sqrt{6} = \boxed{7\sqrt{6}}$$

$$\begin{aligned}(2) 2\sqrt{8} - \sqrt{32} \\ &= 2\sqrt{4\sqrt{2}} - \sqrt{16\sqrt{2}} \\ &= 2(2)\sqrt{2} - 4\sqrt{2} \\ &= 4\sqrt{2} - 4\sqrt{2} \\ &= \boxed{0}\end{aligned}$$

$$\begin{aligned}(3) \sqrt{125} + \sqrt{12} - \sqrt{45} + \sqrt{75} \\ &= \sqrt{25\sqrt{5}} + \sqrt{4\sqrt{3}} - \sqrt{9\sqrt{5}} + \sqrt{25\sqrt{3}} \\ &= 5\sqrt{5} + 2\sqrt{3} - 3\sqrt{5} + 5\sqrt{3} \\ &= \boxed{2\sqrt{5} + 7\sqrt{3}}\end{aligned}$$

$$\begin{aligned}(4) (2 + \sqrt{7})(3 + \sqrt{7}) \\ &= 6 + 2\sqrt{7} + 3\sqrt{7} + 7 \\ &= \boxed{13 + 5\sqrt{7}}\end{aligned}$$

$$\begin{aligned}(5) \frac{8\sqrt{24}}{4\sqrt{2}} + 12\sqrt{3} \\ &= \frac{8\sqrt{24}}{4\sqrt{2}} + \frac{12\sqrt{3}}{4\sqrt{2}} \\ &= 2\sqrt{12} + 3 \\ &= 2\sqrt{4\sqrt{3}} + 3 \\ &= 2(2)\sqrt{3} + 3 \\ &= \boxed{4\sqrt{3} + 3}\end{aligned}$$

$$\textcircled{6} \frac{45\sqrt{40}}{66\sqrt{10}}$$

$$= \frac{3}{4} \sqrt{\frac{40}{10}}$$

$$= \frac{3}{4} \sqrt{4}$$

$$= \frac{3}{4} \cdot \frac{2}{1} = \boxed{\frac{3}{2}}$$

$$\textcircled{7} \frac{\sqrt{7}}{\sqrt{4}} \cdot \frac{\sqrt{7}}{1}$$

$$= \frac{\sqrt{7}}{\sqrt{4}} \cdot \frac{\sqrt{7}}{1} = \boxed{\frac{7}{2}}$$

$$\textcircled{8} 3\sqrt{2}(2\sqrt{8} - \sqrt{3})$$

$$= 6\sqrt{16} - 3\sqrt{6}$$

$$= 6(4) - 3\sqrt{6}$$

$$= \boxed{24 - 3\sqrt{6}}$$

$$\textcircled{9} -2\sqrt{63k^4}$$

$$= -2\sqrt{9}\sqrt{7}\sqrt{k^4}$$

$$= -2(3)\sqrt{7}(k^2)$$

$$= \boxed{-6k^2\sqrt{7}}$$

$$\textcircled{10} \frac{3}{2}\sqrt{20y}$$

$$= \frac{3}{2}\sqrt{4}\sqrt{5}\sqrt{y}$$

$$= \frac{3}{2}(2)\sqrt{5}\sqrt{y}$$

$$= \boxed{3\sqrt{5y}}$$

$$\textcircled{11} \frac{4}{5}\sqrt[3]{125y^5}$$

$$= \frac{4}{5}(\sqrt[3]{125})(\sqrt[3]{y^3})(\sqrt[3]{y^2})$$

$$= \frac{4}{5}(5)(y)\sqrt[3]{y^2}$$

$$= \boxed{4y\sqrt[3]{y^2}}$$

$$\textcircled{12} (8 - \sqrt{3})^2$$

$$= (8 - \sqrt{3})(8 - \sqrt{3})$$

$$= 64 - 8\sqrt{3} - 8\sqrt{3} + 3$$

$$= \boxed{67 - 16\sqrt{3}}$$