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㊻ $5mp^2\sqrt{3n}$ ㊼ $16s^3t\sqrt{2rt}$ ㊽ $\dfrac{5\sqrt{6ab}}{b^2}$

㊾ $\dfrac{h\sqrt{10gf}}{5f^2}$ ㊿ $\dfrac{5\sqrt{3}}{2}$ ⑤ $\dfrac{\sqrt{5}}{10}$ ㊼ $\dfrac{17\sqrt{x}}{2x}$

53 $\dfrac{3\sqrt{x}+4x\sqrt{x}}{x^2}$ 54 $-\dfrac{2\sqrt{m}}{m}$

Solutions

㊻ $\sqrt{75m^2np^4} = \sqrt{25\cdot3\cdot m^2\cdot n\cdot p^4} = \boxed{5mp^2\sqrt{3n}}$

㊼ $\sqrt{512rs^6}\cdot\sqrt{t^3} = \sqrt{512rs^6t^3} = \sqrt{256\cdot2\cdot r\cdot s^6\cdot t^2\cdot t} = \boxed{16s^3t\sqrt{2rt}}$

㊽ $\sqrt{\dfrac{600a}{4b^3}} = \dfrac{\sqrt{600a}}{\sqrt{4b^3}} = \dfrac{\sqrt{100\cdot6\cdot a}}{\sqrt{4\cdot b^2\cdot b}} = \dfrac{10\sqrt{6a}}{2b\sqrt{b}}\cdot\dfrac{\sqrt{b}}{\sqrt{b}} = \dfrac{\cancel{10}^{5}\sqrt{6ab}}{\cancel{2}b^2} = \boxed{\dfrac{5\sqrt{6ab}}{b^2}}$

㊾ $\sqrt{\dfrac{50gh^2}{125f^3}} = \dfrac{\sqrt{50gh^2}}{\sqrt{125f^3}} = \dfrac{\sqrt{25\cdot2\cdot g\cdot h^2}}{\sqrt{25\cdot5\cdot f^2\cdot f}} = \dfrac{5h\sqrt{2g}}{5f\sqrt{5f}}\cdot\dfrac{\sqrt{5f}}{\sqrt{5f}} = \dfrac{5h\sqrt{10gf}}{5f\cdot5f} = \dfrac{\cancel{5}h\sqrt{10gf}}{\cancel{5}\cdot5f^2} = \boxed{\dfrac{h\sqrt{10gf}}{5f^2}}$

㊿ $\dfrac{4}{\sqrt{3}}+\dfrac{7}{\sqrt{12}} = \dfrac{4}{\sqrt{3}}\cdot\dfrac{\sqrt{4}}{\sqrt{4}}+\dfrac{7}{\sqrt{12}} = \dfrac{4\sqrt{4}+7}{\sqrt{12}} = \dfrac{4\cdot2+7}{2\sqrt{3}} = \dfrac{8+7}{2\sqrt{3}} = \dfrac{15}{2\sqrt{3}}\cdot\dfrac{\sqrt{3}}{\sqrt{3}} = \dfrac{15\sqrt{3}}{2\cdot3} = \dfrac{\cancel{15}^{5}\sqrt{3}}{\cancel{2}\cancel{6}} = \boxed{\dfrac{5\sqrt{3}}{2}}$

⑤ $\dfrac{2\sqrt{6}}{\sqrt{30}}-\dfrac{3}{\sqrt{20}} = \dfrac{2\sqrt{6}}{\sqrt{30}}\cdot\dfrac{\sqrt{2}}{\sqrt{2}}-\dfrac{3}{\sqrt{20}}\cdot\dfrac{\sqrt{3}}{\sqrt{3}} = \dfrac{2\sqrt{12}}{\sqrt{60}}-\dfrac{3\sqrt{3}}{\sqrt{60}} = \dfrac{2\sqrt{4\cdot3}-3\sqrt{3}}{\sqrt{4\cdot15}}$

$= \dfrac{4\sqrt{3}-3\sqrt{3}}{2\sqrt{15}}$

$= \dfrac{\sqrt{3}}{2\sqrt{15}}\cdot\dfrac{\sqrt{15}}{\sqrt{15}} = \dfrac{\sqrt{45}}{30} = \dfrac{\sqrt{9\cdot5}}{30} = \dfrac{\cancel{3}\sqrt{5}}{\cancel{10}\cancel{30}} = \boxed{\dfrac{\sqrt{5}}{10}}$

㊼ $\dfrac{7}{\sqrt{x}}+\dfrac{3}{2\sqrt{x}} = \dfrac{7}{\sqrt{x}}\cdot\dfrac{2}{2}+\dfrac{3}{2\sqrt{x}} = \dfrac{14}{2\sqrt{x}}+\dfrac{3}{2\sqrt{x}} = \dfrac{17}{2\sqrt{x}}\cdot\dfrac{\sqrt{x}}{\sqrt{x}} = \boxed{\dfrac{17\sqrt{x}}{2x}}$

53 $\dfrac{3}{\sqrt{x^3}}+\dfrac{4}{\sqrt{x}} = \dfrac{3}{\sqrt{x^3}}+\dfrac{4}{\sqrt{x}}\cdot\dfrac{\sqrt{x^2}}{\sqrt{x^2}} = \dfrac{3}{\sqrt{x^3}}+\dfrac{4\sqrt{x^2}}{\sqrt{x^3}} = \dfrac{3+4x}{\sqrt{x^2\cdot x}} = \dfrac{(3+4x)}{x\sqrt{x}}\cdot\dfrac{\sqrt{x}}{\sqrt{x}} = \boxed{\dfrac{3\sqrt{x}+4x\sqrt{x}}{x^2}}$

54 $\dfrac{6m}{\sqrt{m^3}}-\dfrac{8}{\sqrt{m}} = \dfrac{6m}{\sqrt{m^3}}-\dfrac{8}{\sqrt{m}}\cdot\dfrac{\sqrt{m^2}}{\sqrt{m^2}} = \dfrac{6m-8m}{\sqrt{m^3}} = \dfrac{-2m}{\sqrt{m^2\cdot m}} = \dfrac{-2m}{m\sqrt{m}}\cdot\dfrac{\sqrt{m}}{\sqrt{m}} = \dfrac{-2m\sqrt{m}}{m^2}$

$$\text{(54)} \quad \frac{6m}{\sqrt{m^3}} - \frac{8}{\sqrt{m}} = \frac{6m}{\sqrt{m^3}} - \frac{8}{\sqrt{m}} \cdot \frac{\sqrt{m^2}}{\sqrt{m^2}} = \frac{6m - 8m}{\sqrt{m^3}} = \frac{-2m}{\sqrt{m^2 \cdot m}} = \frac{-2m}{m\sqrt{m}} \cdot \frac{\sqrt{m}}{\sqrt{m}} = \frac{-2m\sqrt{m}}{m^2}$$

$$= \boxed{\frac{-2\sqrt{m}}{m}}$$