

Multiple Rules Practice – Rewrite each in simplest radical form.

$$\frac{16}{6} + \frac{9}{6}$$

<p>1. $4^2 \cdot 8^2$ $(2^2)^2 \cdot (2^3)^2$ $2^4 \cdot 2^6 = \boxed{2^{10}}$</p>	<p>2. $27^{1/4} \cdot 9^{1/4}$ $(3^3)^{1/4} \cdot (3^2)^{1/4}$ $3^{3/4} \cdot 3^{2/4} = 3^{5/4}$ $= \sqrt[4]{3^5} = \boxed{3\sqrt[4]{3}}$</p>	<p>3. $16^{2/3} \cdot 8^{1/2}$ $(2^4)^{2/3} \cdot (2^3)^{1/2}$ $2^{8/3} \cdot 2^{3/2} = 2^{25/6}$ $\sqrt[6]{2^{25}} = \boxed{2^4\sqrt[6]{2}}$</p>	<p>4. $36^{1/2} \cdot 216^{1/2}$ $(6^2)^{1/2} \cdot (6^3)^{1/2}$</p>
<p>5. $5^3 \cdot 25^2$ $5^3 \cdot (5^2)^2$ $5^3 \cdot 5^4 = \boxed{5^7}$</p>	<p>6. $3^3 \cdot 9$ $3^3 \cdot 3^2 = \boxed{3^5}$</p>	<p>7. $27^{1/4} \cdot 3^{1/4}$ $3^{3/4} \cdot 3^{1/4} = 3^{4/4}$ $= \boxed{3}$</p>	<p>8. $36^{1/2} \cdot 6^4$ $\sqrt{36} \cdot 6^4$ $6 \cdot 6^4 = \boxed{6^5}$</p>
<p>9. $\left(\frac{125}{64}\right)^{-1/3}$ $\left(\frac{64}{125}\right)^{1/3} = \frac{\sqrt[3]{64}}{\sqrt[3]{125}}$ $= \boxed{\frac{4}{5}}$</p>	<p>10. $\left(\frac{w^2}{32w}\right)^{2/5}$ $\frac{w^{4/5}}{(\sqrt[5]{32})^2} = \frac{\sqrt[5]{w^4}}{4}$</p>	<p>11. $\left(\frac{y^5}{y^{1/2} \cdot y^{3/4}}\right)$ $\frac{y^5}{y^{5/4}} = \frac{y^{20/4}}{y^{5/4}}$ $= y^{15/4} = \boxed{y^3\sqrt[4]{y^3}}$</p>	<p>12. $\left(\frac{16c^{-8}d^3}{c^4d^5}\right)^{1/2}$ $\left(\frac{16}{c^{12}d^2}\right)^{1/2} = \boxed{\frac{4}{c^6d}}$</p>
<p>13. $\sqrt{\frac{40x^2}{x^{10}}}$ $\frac{\sqrt{40}}{\sqrt{x^8}} = \boxed{\frac{2\sqrt{10}}{x^4}}$</p>	<p>14. $\sqrt{\frac{25}{y^{12}}} \cdot \frac{\sqrt{25}}{\sqrt{y^{12}}}$ $= \boxed{\frac{5}{y^6}}$</p>	<p>15. $\sqrt[4]{\frac{162d^{21}}{2d^2}}$ $\sqrt[4]{81d^{19}} = \boxed{3d^4\sqrt[4]{d^3}}$</p>	<p>16. $7\sqrt{3} - \sqrt{12}$ $7\sqrt{3} - 2\sqrt{3}$ $= \boxed{5\sqrt{3}}$</p>
<p>17. $2\sqrt{63} - 11\sqrt{28} + 5\sqrt{21}$ $6\sqrt{7} - 22\sqrt{7} + 5\sqrt{21}$ $= \boxed{-16\sqrt{7} + 5\sqrt{21}}$</p>	<p>18. $15xy\sqrt[4]{9xy} - \sqrt[4]{9x^5y^5}$ $15xy\sqrt[4]{9xy} - xy\sqrt[4]{9xy}$ $= \boxed{14xy\sqrt[4]{9xy}}$</p>	<p>19. $(81x^{8/3}y^4)^{3/4}$ $81^{3/4}x^2y^3$ $= \boxed{27x^2y^3}$</p>	<p>20. $(4ab^3)^{3/2}$ $4^{3/2}a^{3/2}b^{9/2}$ $= \boxed{8ab^4\sqrt{ab}}$</p>
<p>21. $\left(\frac{a^{12}b^5}{27b^2}\right)^{-1/3}$ $\left(\frac{27b^2}{a^{12}b^5}\right)^{1/3} = \boxed{\frac{3}{a^4b}}$</p>	<p>22. $\sqrt[5]{x^{20}} \cdot \sqrt[4]{x^{12}}$ $x^4 \cdot x^3 = \boxed{x^7}$</p>	<p>23. $\sqrt[3]{3x^4}$ $= \boxed{3\sqrt[3]{x^2}}$</p>	<p>24. $\sqrt[3]{25} \cdot \sqrt[6]{25}$ $5^{2/3} \cdot 5^{2/6} = 5^{4/6} + \frac{2}{6}$ $= 5^{1/2} = \boxed{5}$</p>
<p>25. $a^{2/3}b^{9/6}c^{3/2}$ $a^{4/6}b^{9/6}c^{9/6}$ $bc\sqrt[6]{a^4b^3c^3}$</p>	<p>26. $\frac{\sqrt[5]{y^{15}} \rightarrow y^3}{\sqrt[5]{32y^8} \cdot \sqrt[5]{y^2}}$ $\frac{y^3}{\sqrt[5]{32y^{10}}} = \frac{y^3}{2y^2}$ $= \boxed{\frac{y}{2}}$</p>	<p>27. $\left(\frac{125x^{1/3}y}{64x^{10/3}y^4}\right)^{-1/3}$ $\left(\frac{64x^{10/3}y^4}{125x^{1/3}y}\right)^{1/3}$ $= \frac{4x^{10/9}y^{4/3}}{5x^{1/9}y^{1/3}}$ $= \boxed{\frac{4x^4}{5}}$</p>	<p>28. $\left(\frac{\sqrt{x^5}}{\sqrt{4x}}\right)^{1/2} = \left(\frac{\sqrt{x^4}}{\sqrt{4}}\right)^{1/2}$ $= \left(\frac{x^2}{2}\right)^{1/2} = \frac{\sqrt{x^2}}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}}$ $= \boxed{\frac{x\sqrt{2}}{2}}$</p>