

1.6 Operations on Radicals

Ex 1 Write as a mixed radical

a. $\sqrt{12}$ b. $\sqrt{98}$

Terminology to know:

- Mixed radical
- Entire radical

Ex 2 Write as an entire radical

a. $5\sqrt{3}$ b. $3\sqrt{5}$

Ex 3 Adding and Subtracting Radicals

a. $3m + 2p + p - 4m$
b. $5\sqrt{5} + 3\sqrt{5} + 7\sqrt{5}$
c. $5\sqrt{2} - 3\sqrt{3} + 7\sqrt{2} - \sqrt{3}$
d. $\sqrt{8} + \sqrt{18}$
e. $2\sqrt{50} - \sqrt{18} - \frac{1}{4}\sqrt{48}$

Ex 4 Multiplying Radicals

a. $\sqrt{100} \cdot \sqrt{25}$
b. $3\sqrt{5} \cdot 7\sqrt{2}$
c. $5\sqrt{6} \cdot \sqrt{2}$
d. $2x(3x + 4)$
e. $3\sqrt{5}(\sqrt{2} + 3\sqrt{7})$
f. $(2x + 3)(3x - 7)$
g. $(2\sqrt{5} - \sqrt{7})(2\sqrt{5} + 3\sqrt{7})$

Ex 5 Dividing Radicals

a. $\frac{6\sqrt{10}}{3\sqrt{2}}$
b. $\frac{5\sqrt{60}}{10\sqrt{3}}$
c. $\frac{\sqrt{2}}{\sqrt{6}}$
d. $\frac{\sqrt{3}}{\sqrt{24}}$
e. $\frac{\sqrt{12} - \sqrt{75}}{6}$
f. $\frac{2}{\sqrt{2} + \sqrt{3}}$