1.1 Radical Expressions: Rationalizing

1. From the given binomial expressions, group any conjugate pairs and multiply them together. For any expression without its conjugate partner, write down the expression with its conjugate and multiply them together.

   $1+\sqrt{3},\ \ \sqrt{5}-2,\ \ \sqrt{7}+4,\ \ \sqrt{5}+2,\ \ \sqrt{3}-1,\ \ -4+\sqrt{7},\ \ 1-\sqrt{3}$

2. Rationalize the numerator and write in simplest form:

   a. $\dfrac{\sqrt{2}-1}{5}$ b. $\dfrac{3+\sqrt{5}}{-4}$ c. $\dfrac{\sqrt{3}-\sqrt{7}}{2\sqrt{3}}$ d. $\dfrac{\sqrt{5}-\sqrt{3}}{\sqrt{3}+\sqrt{2}}$ e. $\dfrac{\sqrt{2(x+h)}-\sqrt{2x}}{h}$

3. Rationalize the denominator and write in simplest form:

   a. $\dfrac{\sqrt{6}}{2\sqrt{15}}$ b. $\dfrac{-5}{1+\sqrt{3}}$ c. $\dfrac{1-\sqrt{2}}{1+\sqrt{2}}$ d. $\dfrac{2\sqrt{3}+3\sqrt{5}}{\sqrt{3}+\sqrt{5}}$ e. $\dfrac{2\sqrt{6}}{\sqrt{27}-2\sqrt{8}}$

Answers to selected problems:

2. a. $\dfrac{1}{5\left(\sqrt{2}+1\right)}$ c. $\dfrac{-2}{3+\sqrt{21}}$ e. $\dfrac{2}{\sqrt{2(x+h)}+\sqrt{2x}}$

3. a. $\dfrac{\sqrt{10}}{10}$ c. $\dfrac{3-2\sqrt{2}}{3}$ e. $-\dfrac{18\sqrt{2}+16\sqrt{3}}{5}$