1.Perform the indicated operation and simplify your answers.

$\frac{\sqrt{2}}{7}+\frac{6\sqrt{2}}{5}$

$\sqrt{25x}+\sqrt{16x}$

$3\sqrt{18}-5\sqrt{50}$

$\sqrt{2}-\sqrt{11}+6\sqrt{2}+4\sqrt{11}$

$3\sqrt[3]{3}+8\sqrt{5}+2\sqrt[3]{54}+\sqrt{125}$

$\sqrt[3]{54x^5}+2x\sqrt[3]{16x^2}-7\sqrt[3]{2x^5}$

$\frac{\sqrt[3]{x^5}}{4}+\frac{3x\sqrt[3]{x^2}}{2}$

$\left(3\sqrt{2}-2\sqrt{8}\right)\left(2\sqrt{3}-4\sqrt{5}\right)$

$\left(\sqrt{7}+\sqrt{5}\right)\left(\sqrt{7}-\sqrt{5}\right)$

$\left(\sqrt{x}+\sqrt{y}\right)\left(\sqrt{x}-\sqrt{y}\right)$

$\left(\sqrt{2x}+\sqrt{50}\right)^2$

$\left(y-\sqrt{2y-5}\right)^2$

2. Rationalize the denominator and simplify.

$\frac{2}{\sqrt[3]{3}}$

$\frac{-10\sqrt{3}}{\sqrt{5}}$

$\frac{8}{\sqrt{5x}}$

$\sqrt[4]{\frac{81}{2x^9}}$

$\frac{8}{1-\sqrt{3}}$

$\frac{-2}{\sqrt{x}+3}$

$\frac{\sqrt{a}}{\sqrt{a}-\sqrt{b}}$

$\frac{3\sqrt{2}+\sqrt{6}}{4\sqrt{2}-\sqrt{6}}$

3. For each set of functions below, find $(f\circ g)(x)$ and $(g\circ f)(x)$.

a) $f(x)=3x+2$ and $g(x)=\frac{x-2}{3}$

b) $f(x)=x^3+6$ and $g(x)=\sqrt[3]{x-6}$

c) $f(x)=\frac{x+10}{3}$ and $g(x)=3x-10$