Unit 6.6 Radical Addition and Subtraction

1. Simplify the following radical expressions

   a. $\sqrt{3} + \sqrt{5}$ = _____

   b. $2\sqrt{2} + \sqrt{2}$ = _____

   c. $\sqrt{24} + \sqrt{48}$ = _____

   c. $3\sqrt{6} - 7\sqrt{6}$ = _____

   d. $\sqrt{20} + 3\sqrt{80} - 19\sqrt{5}$ = _____

   e. $2\sqrt{3} - \sqrt{12} + 2\sqrt{18}$ = _____

   f. $3\sqrt{12} + 4\sqrt{48} - \sqrt{108}$ = _____

g. $9\sqrt{12} + \sqrt{32} - \sqrt{72} =$ _____

2. Simplify the following radical expressions

   a. $3y\sqrt{3x^5} + x^2\sqrt{12xy^2} =$ _____

   b. $2w^2\sqrt{6wy^5} - y\sqrt{96w^5} =$ _____

   c. $x\sqrt{54xw^2} - 5w\sqrt{6x^3} =$ _____

   d. $8x\sqrt{48w^3} + w\sqrt{27wx^2} =$ _____

   e. $-\sqrt[4]{32y^4} + 3\sqrt[4]{162y^8} =$ _____

   f. $-\sqrt[3]{32y^8} + 2\sqrt[3]{108y^8} =$ _____

3. Perform the requested operations and simplify as much as possible

a. $\sqrt{3}\,(8\sqrt{3} - 2\sqrt{6}\,) =$ _____

b. $\sqrt{2}\,(5\sqrt{10} + 2\sqrt{2}\,) =$ _____

c. $2\sqrt{5}\,(3\sqrt{15} - 7\sqrt{10}\,) =$ _____

d. $3\sqrt{7}\,(9\sqrt{21} + 5\sqrt{14}\,) =$ _____

e. $(\sqrt{5} - \sqrt{x}\,)(\sqrt{5} + \sqrt{x}\,) =$ _____

f. $(2\sqrt{5} - 3\sqrt{2x})(2\sqrt{5} + 3\sqrt{2x}) = $ _____

g. $(3\sqrt{x} + \sqrt{5})^2 = $ _____

h. $(4\sqrt{w} - 2\sqrt{5})^2 = $ _____