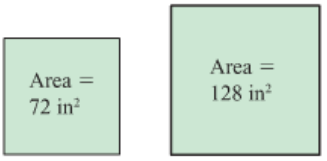
8.4, 8.5 In-class Practice Math 085

1. Simplify and add or subtract, if possible. Assume that all variables represent positive real numbers.

   a) $-8\sqrt{24}-3\sqrt{6}+2\sqrt{150}$
   b) $\sqrt[3]{16ab^4}-\sqrt[3]{54ab}$
   c) $\sqrt{54x^3}-x\sqrt{150x}$
   d) $9y\sqrt{3x}+4y\sqrt{3x}$
   e) $\sqrt{45x^3}-\sqrt{18x^2}+\sqrt{50x^2}-\sqrt{20x^3}$
   f) $\sqrt{x^3-x^2}+\sqrt{9x-9}$
   g) $14\sqrt{\frac{x^2}{49}}-\sqrt{\frac{144x}{9}}$
   h) $\sqrt{\frac{81}{x^{10}}}+\sqrt{\frac{25}{x^8}}$

2. Given $f(x)=-\sqrt{108x^4}$ and $g(x)=x\sqrt{147x^2}$, find $(f+g)(x)$ and $(f-g)(x)$.

3. The areas of two types of square floor tiles sold at a home improvement store are shown. How much longer is the side of the larger tile? Express the answer as a radical in simplest form and as a decimal to the nearest tenth.



4. A rectangular yard has a length of $\sqrt{192}$ m and a width of $\sqrt{48}$ m. Choose the best estimate of its dimensions. Then estimate the perimeter.

   A. 14 m by 7 m **B.** 5 m by 7 m **C.** 14 m by 8 m **D.** 15 m by 8 m

5. Which of the following equations are identities? Explain your answers.

   a) $\sqrt{9x}=3\sqrt{x}$
   b) $\sqrt{9+x}=3+\sqrt{x}$
   c) $\sqrt{x-4}=\sqrt{x}-2$
   d) $\sqrt{\frac{x}{4}}=\frac{\sqrt{x}}{2}$

6. Multiply, and then simplify each product. Assume that all variables represent positive real numbers.

   a) $2\sqrt{3}\left(2\sqrt{5}-6\sqrt{3}\right)$
   b) $-\sqrt[3]{3x}\left(\sqrt[3]{9x}-\sqrt[3]{x^2}\right)$
   c) $\left(2\sqrt{3}-\sqrt{6}\right)\left(2\sqrt{3}+\sqrt{6}\right)$
   d) $\left(2\sqrt{3}-\sqrt{2}\right)\left(3\sqrt{2}+\sqrt{3}\right)$
   e) $\left(3\sqrt{a}+2\sqrt{b}\right)^2$
   f) $\left(\sqrt{x-1}+1\right)^2$
   g) $\left[\left(\sqrt{2}+\sqrt{3}\right)-\sqrt{5}\right]\left[\left(\sqrt{2}+\sqrt{3}\right)+\sqrt{5}\right]$
   h) $\left(\sqrt{x+2}+\sqrt{x-2}\right)^2$

7. Rationalize the denominator. Assume that all variables represent positive real numbers.

   a) $\frac{15}{\sqrt{3}}$
   b) $-\sqrt{\frac{7}{50}}$
   c) $\frac{-x}{3\sqrt{2xy^2}}$
   d) $\frac{7x}{\sqrt[3]{4xy^5}}$
   e) $\frac{3}{2+\sqrt{5}}$
   f) $\frac{\sqrt{2}}{2\sqrt{3}-\sqrt{2}}$
   g) $\frac{1+x}{1-\sqrt{x}}$
   h) $\frac{4\sqrt{x}+\sqrt{y}}{\sqrt{x}-4\sqrt{y}}$

8. For the functions $f(x)=2x\sqrt{7x}$ and $g(x)=\frac{1}{2}\sqrt{14x}$, find and $(fg)(x)$ and $\frac{f(x)}{g(x)}$.

9. Simplify.

   a) $\frac{3+\sqrt{18}}{6}$
   b) $\frac{6p+\sqrt{24p^3}}{3p}$