Name: _____   Date: _____

1.4 Skills You Need: Working With Radicals   **BLM 1–5**
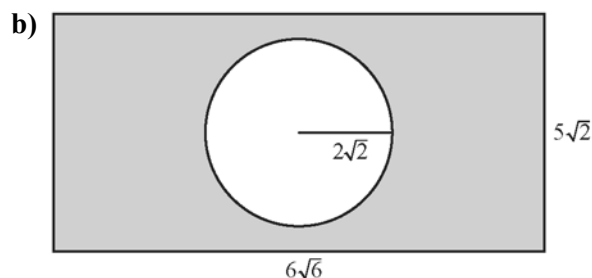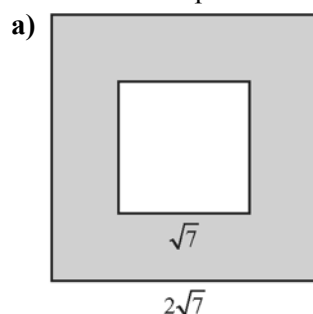
1. Simplify.

   a) $8\sqrt{3} + 5\sqrt{12} - 2\sqrt{75}$

   b) $3\sqrt{8} - 5\sqrt{27} + 2\sqrt{3} - \sqrt{32}$

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

   d) $\dfrac{1}{3}\sqrt{18} + \dfrac{3}{5}\sqrt{75} - \dfrac{5}{3}\sqrt{27}$

2. Find a simplified expression for the shaded area in each shape.

   a)

$\sqrt{7}$

$2\sqrt{7}$

   b)

$2\sqrt{2}$ $5\sqrt{2}$

$6\sqrt{6}$

3. Are the expressions $-1 - \sqrt{5}$ and $-1 + \sqrt{5}$ solutions to the equation $x^2 + 2x - 4 = 0$? Justify your answers.

4. A rectangle has a length of 10 cm and a diagonal length of 18 cm. Determine the perimeter and the area of the rectangle.

5. Outline the steps to fully simplify the expression $\sqrt{588}$.

6. A circle has an area of 63π cm^2. Find the radius of the circle in simplified radical form.

7. A square field is surrounded by 6-m sections of fencing. If the diagonal length of the field is $54\sqrt{2}$ m, how many lengths of fencing are on each side?