SECTION 2.3 **Math 1090 Worksheet** FALL 2009

For practise only. Not to be submitted.

1. Simplify the expression $6\sqrt{20} - 5\sqrt{45}$.

2. Rationalise the denominator and simplify each expression.

    (a) $\dfrac{15}{2\sqrt{5}}$

    (b) $\dfrac{3}{6 - 4\sqrt{3}}$

    (c) $\dfrac{1}{\sqrt{7} + 3\sqrt{2}}$

3. Factor each of the following, if possible.

    (a) $49x^2 - 16$
    (b) $x^2 - 7x + 6$
    (c) $x^2 - 5x + 6$
    (d) $x^2 + 5x - 24$
    (e) $4x^2 + 18x + 8$
    (f) $9x^2 - 30x + 25$
    (g) $12x^2 - x - 6$
    (h) $4 + 19x - 5x^2$

4. Solve each of the following equations.

    (a) $9x^2 - 16 = 0$
    (b) $4x(7 - x) = 49$
    (c) $1 - 2x^2 - 4x = 0$

5. For each of the following expressions, complete the square.

    (a) $x^2 + 6x + 8$
    (b) $3x^2 - 3x + 2$
    (c) $17 - 5x^2 - 40x$

6. Sketch the graph of each of the following *without* constructing a table of values. Label all important points. Identify the range of the function in each case.

    (a) $f(x) = \frac{1}{2}x^2 + 1$
    (b) $f(x) = -x^2 + 4x - 3$
    (c) $y = 4x^2 - 4x - 3$