# Standard #20 Model Assessment Items

## *Computational and Procedural Skills*

1. Identify the appropriate values for *a, b,* and *c* in the following:
    A. $2x^2 + 7x - 15 = 0$

    B. $3x^2 = -4x + 1$

2. Solve using the quadratic formula:
    A. $8x^2 + 18x - 5 = 0$

    B. $3x^2 = -4x + 1$

    C. $x^2 + (x+2)^2 = 7$

3. Identify the most appropriate method for solving each of the following quadratic
    equations (square root property, factoring, completing the square, quadratic formula)
    A. $3x^2 + 6x = 0$

    B. $x^2 - 8 = 0$

    C. $x^2 + 3x + 1 = 0$

    D. $x^2 + 4x - 3 = 0$

## *Conceptual Understanding*

1. In what situations would it be advantageous to use the quadratic formula to solve a
    quadratic equation?

2. List three techniques, other than the quadratic formula, for solving quadratic
    equations. Create an example to illustrate each technique.

## *Problem Solving/Application*

1. The area of a rectangle is 44 inches. The perimeter of the rectangle is 30 inches.  Find
    the length and width.

2. A company produces DVDs. The function for the profit of the company is:
    $P(x) = 2x^2 - 16x - 66$. Find the break-even points (the selling prices for which the
    profit is 0).

3. The length of a rectangle is 6 feet longer than its width. If the area is 50 square feet,
    find the length and width of the rectangle.

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