In-Class Problems 10 for Monday, February 26

These problems are from Pre-Class Problems 10.

1. If $f(x) = \sqrt{2x + 13}$ and $g(x) = 3x^2 - 5x - 27$, then find

    a. $(f \circ g)(-2)$ b. $(g \circ f)(-2)$

2. If $f(x) = 9 - x^2$ and $g(x) = 4x - 7$, then find

    a. $(f \circ g)(x)$ b. $(g \circ f)(x)$

3. Given the function h, find functions f and g such that $h = f \circ g$.

    a. $h(x) = \dfrac{8}{3x + 16}$ b. $h(x) = \sqrt[5]{\dfrac{5x + 3}{x + 2}}$

4. Write the following quadratic functions in vertex form by completing the square. Then a. identify the vertex, b. determine whether the graph of the parabola opens upward or downward, c. determine the x-intercept(s), d. determine the y-intercept, e. sketch the graph of the function, f. determine the axis of symmetry, g. determine the maximum or minimum value of the function, h. determine the range of the function.

    a. $f(x) = -x^2 + 8x - 14$ b. $g(x) = 3x^2 + 2x - 8$

5. A company wants to use fencing to enclose a rectangular region next to a warehouse. If they have 400 yards of fencing and they do not fence in the side next to the warehouse, what is the largest area that they can enclose?

    Warehouse