Math 150 - Week-In-Review 4

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Problem Statements

1. Write the given functions in standard form. Then determine the vertex, whether the vertex is a maximum or minimum, and the axis of symmetry.

   a) $g(x) = -4x^2 - 16x - 9$

   b) $h(x) = \frac{1}{3}x^2 - 4x + 3$

   c) $f(x) = 2x^2 + 2x + 3$

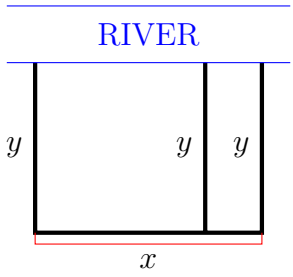
2. Find the x-intercepts of the following functions.

   a) $f(x) = x^2 - 3x - 10$

   b) $h(x) = \frac{1}{3}x^2 - 4x + 3$

   c) $f(x) = 2x^2 + 2x + 3$

3. A farmer decides to enclose two rectangular stalls against a river so his horses have water access. The figure below shows the shape he wants to make. If he has 2100 feet of fencing, what values for x and y will maximize the enclosed area with no fencing against the river? What is the maximum area he can enclose?



4. For the given polynomial functions, determine the end behavior of the graph.
   a) $f(x) = 3x^8 + 7x^5 + 12$

   b) $g(x) = -4x^9 - 3x^5 + 8$

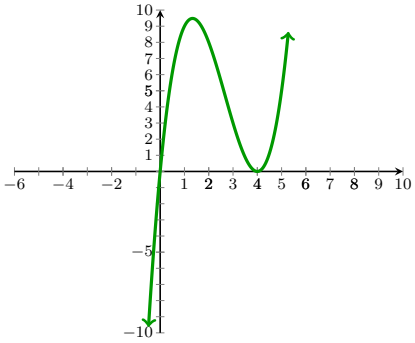
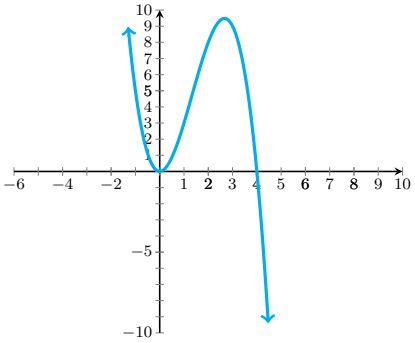
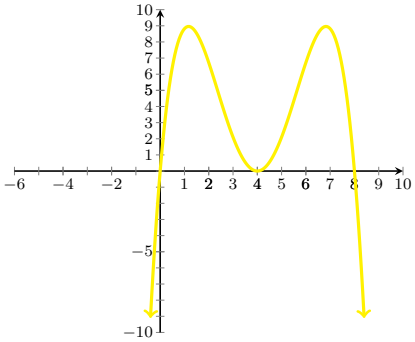
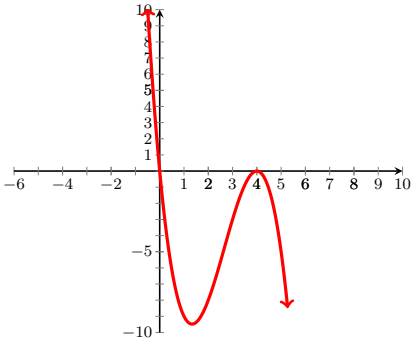
   c) $h(x) = 14x^2 + 9x^5 - 6$

5. Find the zeros and their multiplicities for the following functions, then determine the end behavior and maximum number of turning points. Roughly sketch the graph.
   a) $k(x) = 2x^3 - 3x^2 - 9x$

b) $g(x) = -x^4 + 8x^2 - 16$

c) $h(x) = 4x^5 - 9x^3$

6. Match the function $g(x) = -x^3 + 8x^2 - 16x$ to its graph.

7. Match the function $g(x) = 2x^4 - 3x^2 + 1$ to its graph.