Problems PreCal 1508 PLTL Workshop, September 14, 2011
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1. Graph the following quadratic functions and find their vertex and x-intercepts.
   (a) $f(x) = 2x^2 + 4x + 7$
   (b) $g(x) = 3(x-4)^2 + 3$
2. Use long division to divide $f(x) = x^5 - 2x^4 + x^3 - 4x^2 + 4x$ by $q(x) = x^2 + x + 2$.
3. Find the value of b such that the function has the given minimum or maximum value.
   (a) $f(x) = x^2 + bx + 26$; Minimum value 10
4. What is the discriminant of $f(x) = qx^2 + rx + s$ and what can it tell you about f?
5. Determine through Long Division if 3 is a root of $f(x) = x^3 + 6x^2 - 25x - 6$.
6. Is the vertex of a quadratic function and one other point enough to uniquely determine it? Explain.
7. Create a version of the division theorem for positive Integers. What will you use instead of *degree*?
8. If $f(x)$ is a polynomial of degree n and g is a polynomial of degree m what is the degree of $f + g$? of $f \cdot g$?
9. If f is an odd function, is $f \circ f$ also odd?