Math 1043 College Algebra **Name:** _____
Abedi, Spring 2008

1. Find $f^{-1}(x)$ and graph both f and f^{-1}. a) $f(x) = -3x + 4$ b) $f(x) = (x-2)^3$

2. Sketch the graph of the following quadratic functions. Find the vertex and intercepts.

a) $f(x) = -(x-2)^2 + 1$ b) $f(x) = 2x^2 - 8x + 5$

3. Let $f(x) = 2x + 2$ and $g(x) = (x-3)^2, x \geq 3$. Find the inverse functions and graph all of them.

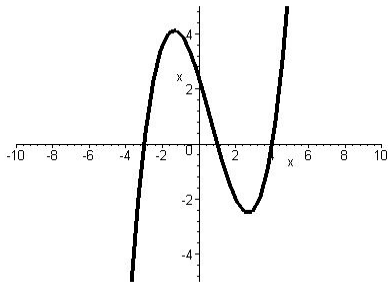
For problems 4-7 use the graph of the polynomial $P(x)$, at the right

4. Find the *x*-intercepts of $P(x)$ _____

5. Find the *y*-intercept of $P(x)$ is _____

6. Find the degree of $P(x)$ _____

7. Find a polynomial function representing the graph.



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8. Find a seventh degree polynomial function that has zeros(*x*-intercepts): −2, 0, and 1. _____

9. Let $f(x) = 27x^6 + 15x^4 - 3x + 14$.

a) Find the *y*-intercept of *f* _____Find the degree of *f* _____

b) Determine the end behavior of the graph of the function *f*_____

10. Graph the following polynomial functions. Determine the degree and *x*-intercept(s).

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

For problems 11 and 12 consider the rational function $f(x) = \dfrac{2x^2 - 3x}{3x^2 - 75}$.

11. Fid the vertical asymptote(s) of *f*(*x*) and the horizontal asymptote of *f*(*x*). Find intercepts and graph *f*(*x*).

13. Find the *x* intercept, *y* intercept and the domain of the rational function $f(x) = \dfrac{2x+1}{x^2 - x - 2}$. Graph *f*(*x*)

Graph the following rational functions:

14. $g(x) = \dfrac{x}{x-1}$, 15. $f(x) = \dfrac{x}{(x-1)^2}$, 16. $h(x) = \dfrac{x^2}{x-1}$