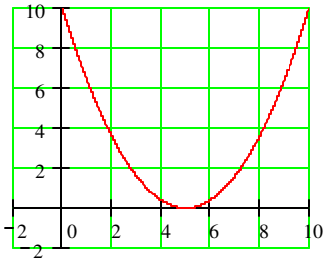
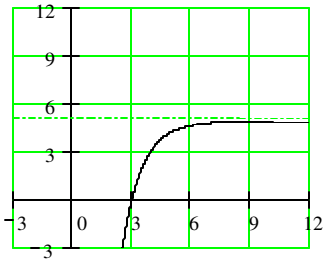
5.) (10 pts) The graphs of f and g are given in the figures below, along with the asymptote to the graph of g.



y = f(x)



y = g(x)

Using the graphs, determine approximate values (to the nearest integer) for each of the following:

(a) $f(g(3))$ _____ (b) $g^{-1}(f(8))$ _____ (c) $f^{-1}(0)$ _____

(d) $f(g(1{,}000{,}000))$ _____ (e) $g(g^{-1}(3))$ _____

6.) (15 pts) Determine the *zeros* (if any) and describe the behavior as $x \to \infty$ of the following functions: [No explanation necessary.]

(a) $f(x) = \dfrac{5(x+1)(1-x)}{(x+2)(x-3)}$

zeros: _____

as $x \to \infty$, $f(x) \to$ _____

(b) $g(x) = \dfrac{(x^2+1)}{(x+2)}$

zeros: _____

as $x \to \infty$, $g(x) \to$ _____

(c) $h(x) = -2x(x-3)(x+4)$

zeros: _____

as $x \to \infty$, $h(x) \to$ _____

(d) $j(x) = (x-2)^3(3x+1)$

zeros: _____

as $x \to \infty$, $j(x) \to$ _____

(e) Using the function from part (d), write a formula for $m(x)$, given $m(x) = j(x-1)$. [No need to "expand," but do simplify.]

$m(x)$ = _____