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

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) $f(x) = \frac{5(x+1)(1-x)}{(x+2)(x-3)}$  
zeros: ________________  
as $x \to \infty$, $f(x) \to$ __________

(b) $g(x) = \frac{x^2+1}{x+2}$
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.]

$m(x) = \boxed{}$