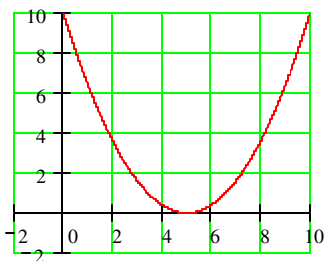


- 5.) (10 pts) The graphs of  $f$  and  $g$  are given in the figures below, along with the asymptote to the graph of  $g$ .



$y = f(x)$



$y = g(x)$

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  $x \rightarrow \infty$  of the following functions:  
[No explanation necessary.]

(a)  $f(x) = \frac{5(x+1)(1-x)}{(x+2)(x-3)}$  zeros: \_\_\_\_\_

as  $x \rightarrow \infty$ ,  $f(x) \rightarrow$  \_\_\_\_\_

(b)  $g(x) = \frac{(x^2+1)}{(x+2)}$  zeros: \_\_\_\_\_

as  $x \rightarrow \infty$ ,  $g(x) \rightarrow$  \_\_\_\_\_

(c)  $h(x) = -2x(x-3)(x+4)$  zeros: \_\_\_\_\_

as  $x \rightarrow \infty$ ,  $h(x) \rightarrow$  \_\_\_\_\_

(d)  $j(x) = (x-2)^3(3x+1)$  zeros: \_\_\_\_\_

as  $x \rightarrow \infty$ ,  $j(x) \rightarrow$  \_\_\_\_\_

- (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.]

$m(x) =$  \_\_\_\_\_