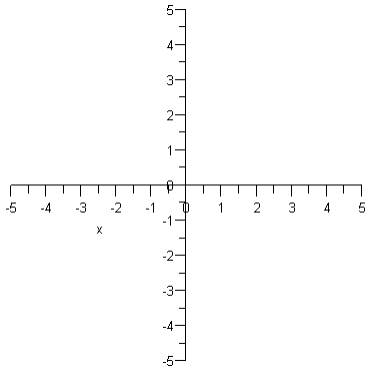
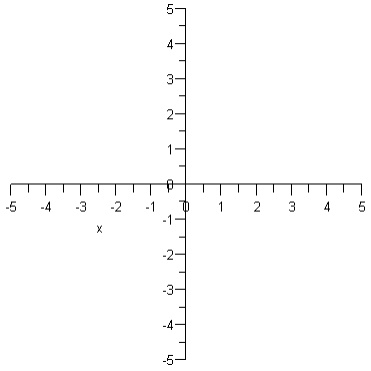
161 Practice Test 3

Graph the following:

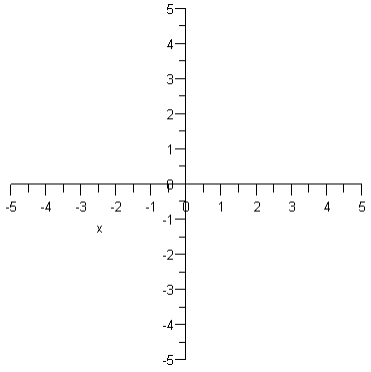
1. A quadratic polynomial with negative leading coefficient and zeros at – 1 and 2.



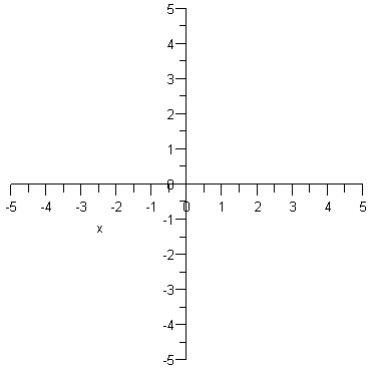
2. Any cubic polynomial with positive leading coefficient and three real zeros.



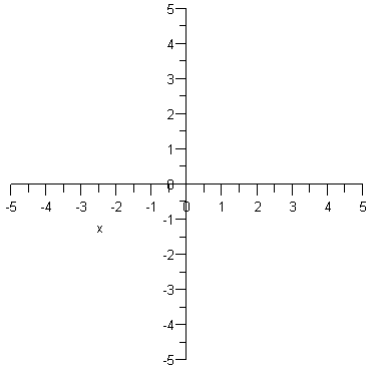
3. The fourth degree polynomial with zeros -3, 0, and 3 with multiplicity 2.



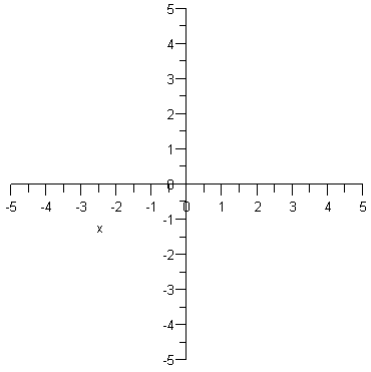
4. A rational function with horizontal asymptote $y = 0$ and vertical asymptote $x = 3$.



5. A cubic polynomial negative leading coefficient and 2 real zeros.



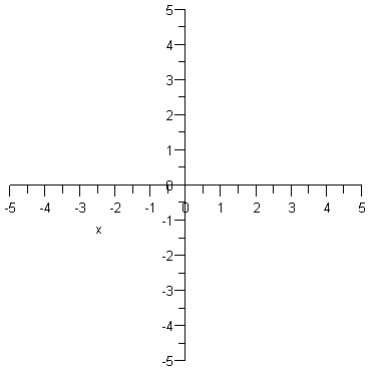
6. A rational function with horizontal asymptote at $y = 2$ and vertical asymptotes at $x = -3$ and $x = 3$



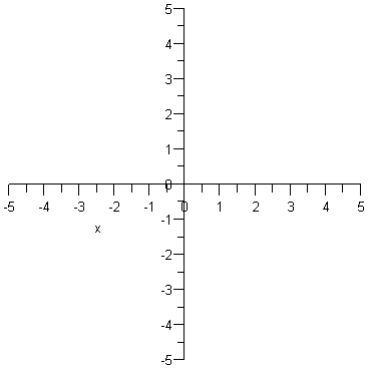
Give an example of an equation for each of the functions graphed above.

7. Give an example of a rational function with no horizontal asymptote and a vertical asymptote at $x = 3$
8. For the rational function $f(x) = \dfrac{1-x}{1+x}$ find the domain, the horizontal asymptote and vertical asymptote.

9. Using the above information, graph the function.

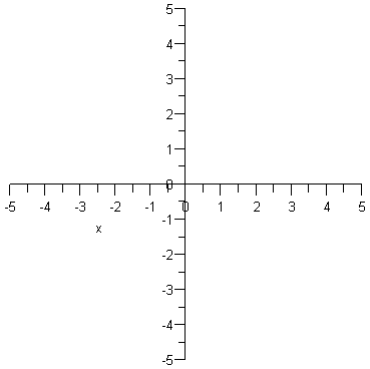


10. For the rational function $g(x) = \dfrac{x}{x^2 - 4}$ find the domain, the horizontal asymptote and vertical asymptote.
11. Using the above information, graph the function



12. For the rational function $h(x) = \dfrac{x^2 + 2x - 1}{x - 1}$ find the domain, the vertical asymptote and the oblique asymptote.

13. Graph the function.



14. Find the zeros and vertex of the quadratic function $h(t) = 128 + 48t - 16t^2$

15. Find a cubic polynomial with integer coefficients and zeros at 2 and $1 + \sqrt{3}$

16. Write the partial fraction decomposition for the rational expression

$$\frac{3x - 4}{(x-3)(x+2)}$$