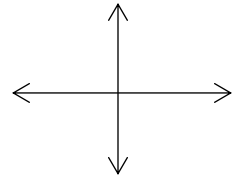2.1, 2.2 & 2.5 Practice

1) [2.1] Given the function $g(x) = \dfrac{-1}{x^2} + 2$, sketch a graph and find:

Domain:_____   Range: _____

Intercepts: _____

Continuity: _____

Increasing: _____   Decreasing: _____

End Behavior: _____

2) [2.2] Solve by factoring: $4x^3 + 2x^2 - 2x = 1$

3) [2.2] Solve by factoring: $-4 = x^4 + 4x^2$

4) [2.2] Solve by factoring: $x^4 - 81 = 0$

5) [2.2] Solve by factoring: $3x^5 - 14x^3 + 8x = 0$

6) [2.5] For the function $p(x) = \dfrac{2x^2 - 7x + 3}{x^2 - 9}$, determine any asymptotes, holes, and intercepts. Then graph the function and state its domain.
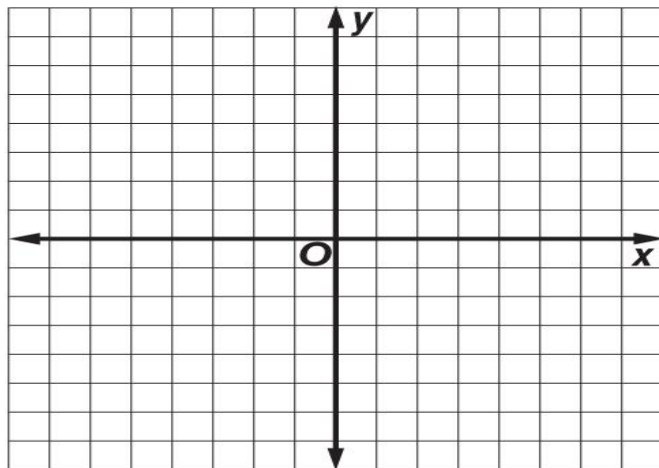
Hole:

VA:

HA:

D:

R:

x	y

7) [2.5] Create the equation of a rational function with a) no horizontal asymptotes, b) $y = 0$ and c) $y = 1/3$ as asymptotes.

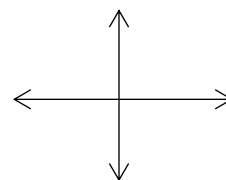a)   b)   c)

8) [2.2] Given a function is a polynomial to the 5th degree, has a negative leading term, with the only real zero of -1 with a multiplicity of 3, sketch a graph.

9) [2.2] For $m(x)$, apply the leading term test, determine the number of turning points, determine the zeros and state the multiplicity of any repeated roots, and sketch a graph without a calculator

$m(x) = -7(x+1)^2(x-2)(x+5)$