Sheet 955: POLYNOMIAL AND RATIONAL FUNCTIONS.

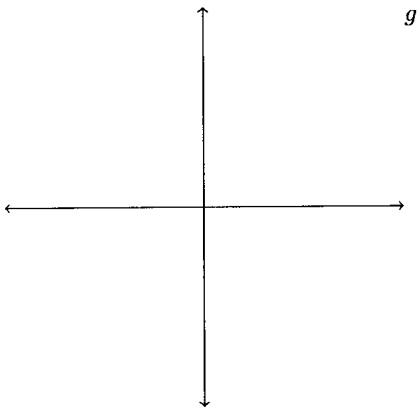
Name _____

Make sure to know how to do multiple choice questions without choices given.

Graphing calculator not allowed

1. Find the simplest polynomial function with integer coefficients whose graph crosses the x-axis only at $(-5,0)$, $(5,0)$, $(-2,0)$, and $(2,0)$.

2. Write asymptotes and intercepts. Sketch. $g(x) = \dfrac{x+2}{3-x}$



Write asymptotes and intercepts.

3. $g(x) = \dfrac{-1}{x-4}$

4. $h(x) = \dfrac{5x-2}{x}$

5. $m(x) = \dfrac{4}{(x-5)^2}$

6. $g(x) = \dfrac{x+2}{(x-2)(x+7)}$

7. Write slant asymptote. $q(x) = \dfrac{5x^2+3x-2}{x-2}$

Graphing calculator required

8. The total daily profit P, in dollars on the production of x items is $P(x) = -2x^2 + 64x - 12$. How many items must be produced each day to maximize profit? What is the maximum profit?

9. Which of the following is an approximate zero of $y = 10x^3 - 9x + 4$?

   a) -1.4597 b) -1.2201 c) -1.1211 d) -0.5280 e) 1.3265

10. Given $f(x) = x^2 - 1$ and $g(x) = \dfrac{1}{x}$, find the x-value of the point of intersection of the two functions.

    a) 0.358 b) 0.754 c) 0.897 d) 1.134 e) 1.325

Answer List

1. $g(x) = x^4 - 29x^2 + 100$
2. $x = 3,\ y = -1$
3. $x = 4,\ y = 0$
4. $x = 0,\ y = 5$
5. $x = 5,\ y = 0$
6. $x = 2,\ x = -7,\ y = 0$
7. $y = 5x + 13$ OR JUST $y = 5x$
8. 16 items; \$500
9. c
10. e