Grima MAT 151 Chapter 5 practice test with hypothetical point values

1) $f(x) = x^3 - 49x$ (part a worth 4 points, additional parts 3 points each, 22 total points)

a) List each x-intercept (zero) and its multiplicity (round to 2 decimal places when needed)

b) Determine whether the graph crosses or touches the x-axis at each x-intercept

c) Determine the maximum number of turning points on the graph

d) Sketch a graph **(below)** and approximate the turning points, also label the x-intercepts (round to 2-decimals when appropriate.)

e) Describe the end behavior (find the power function that the graph resembles for large values of

f) State the interval(s) where the function is increasing
g) State the interval(s) where the function is decreasing

2) $f(x) = 6x^3 - 13x^2 - 19x + 12$
(part a worth 3 points, part b worth 10 points, part c worth 7 points)

a) use your graphing calculator, or the rational root theorem to find a x-intercept of the polynomial

b) use synthetic division to completely factor the polynomial

c) Use your answer to part b to solve f(x) = 0

3) Create a function with lead coefficient 1 that satisfies the conditions;
degree 2: zero 5i (8 points)

4) $let\ f(x) = \frac{3x+6}{x-2}$

(4 point for each part – 20 total points)

a) the domain, written in interval notation

b) the equation of the vertical asymptote (write none if there is no vertical asymptote)

c) the equation of the horizontal asymptote (write none if there is no horizontal asymptote) (fraction answer)

d) x- intercept(s) if any

e) y-intercept(s) if any
(you do not need to graph the function)

5) $Let\ f(x) = \frac{x^2+7x-18}{x-3}$ (4 point for each part – 20 total points)

Find the following:

a) the domain of written in interval notation

a_____

b) the equation of the vertical asymptote (write none if there is no vertical asymptote)

b_____

c) the equation of the slant asymptote (write none if there is no slant asymptote)

c_____

d) x- intercept(s) if any

d_____

e) y-intercept(s) if any
(you do not need to graph the function)

e_____

6) Form a polynomial function of lowest degree with whose x-intercepts are given, that passes through the given point. (10 points)

x-intercepts: (-1,0), (4,0) multiplicity 2; point (1, 90)

6_____