

Math 146 Review for Half-Exam on Chapter 3:

1. List all of the possible rational zeros of a polynomial, such as $f(x) = 3x^4 - 2x^3 + 7x + 10$

2. Completely factor a polynomial, given some information about some of the roots:

a. $f(x) = 2x^4 - x^3 - 3x^2$

b. $f(x) = x^3 - x^2 - 11x + 3$ given -3 is a zero.

c. $f(x) = 6x^3 + 11x^2 - 57x - 20$ given -4 is a zero

3. Graph each of these functions. Include your work showing how you figured out:

- Zeros
- Vertical asymptotes (if any)
- A sign chart
- End behavior

a. $y = x(x+2)^2(2x-3)$

b. $y = (x-1)^2(x-3)^3(x+2)$

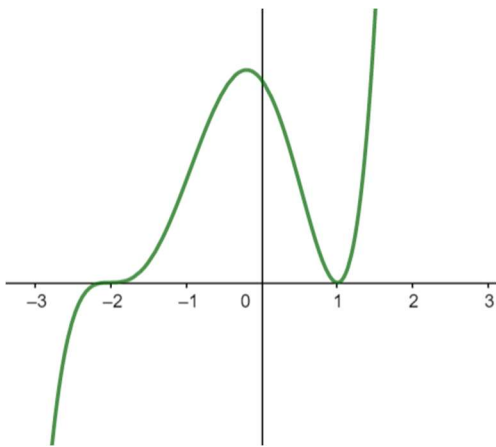
c. $y = \frac{(x+1)^2}{(x-1)(x+4)}$

d. $y = \frac{(2x+1)(x-4)}{(x-1)(x-3)}$

e. $y = \frac{x}{(x-3)(x+2)}$

4. Write an equation of a function that will have the graph behavior shown (it should agree on zeros and signs):

a.



b.

