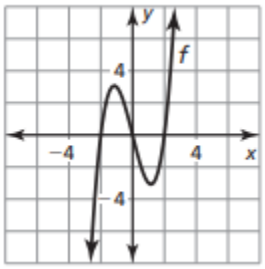
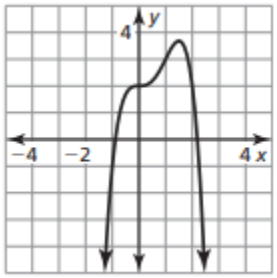
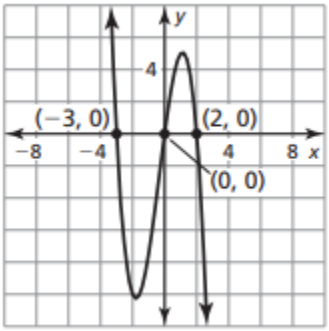
Math3: Chapter 3 Review for final exam

1. Describe the leading coefficient and degree of the functions graphed below, based on the end behavior of the graphs.

a. 

b. 

c. 

2. Perform the operations

a. $(3x^3 – 5x^2 + 8x – 10) – (x^3 – 6x^2 – 4x + 3)$

b. $(x – 5)(x + 2)(3x – 1)$

3. Expand $(3x + 2)^4$ using Pascal's triangle.

4. Divide $3x^3 + 2x^2 – 5x + 1$ by $x – 2$ using long division and synthetic division. Is $x – 2$ a factor?

5. Factor completely

a. $8x^3 – 1$

b. $x^4 – 5x^2 + 4$

6. List the possible rational zeros of $f(x) = 3x^5 + 2x^3 – 8x + 7$

7. Find all the zeros of $f(x)= x^3 + 4x^2 + 4x + 1$

8. Write a polynomial function of least degree with zeros of 3 and 2i

9. Graph $g(x) = (x – 1)^2(x + 1)(x + 3)$ (keep in mind x-intercepts and end behavior)

10. Write a cubic function for the graph below.