Math 3 Fall Final Review Ch 3

 1. Describe the *end behavior* of the
 2. Find the difference:

 function using infinity notation.
 $(5x^3 + 2x^2 + 4x - 8) - (5x^3 - 3x^2 + 9x - 10)$

 h(x) = $-6x^3 + 6x^2 + 2x + 10$ (5x - 7)(3x - 7)

 3. Find the product: a) $(x - 3)(2x^2 - 4x + 6)$ b) (3x - 7)(3x + 7) c) $(5x + 2)^2$ d) $(x + 2)^3$

- 4. Use you answer Pascal's triangle to expand $(3x + 2)^4$
- 5. Divide using long division.6. Use synthetic division to divide $(2x^2 + x 17) \div (x 4)$ $(-2x^3 + 4x^2 + 8x + 10) \div (x + 3)$
- 7 Use synthetic division to evaluate the function8 Factor completely : $x^3 7x^2 18x$ for x = -1 $g(x) = 3x^3 2x^2 + 2x 5$
- 9. Factor completely $x^3 2x^2 9x + 18$ 10. Factor completely $x^3 125$
- 11. Factor completely $2x^2 8$ 12. Factor completely $x^4 - 10x^2 + 9$
- 13. Factor completely $9x^3 + 21x^2 + 6x$
- 15. Solve the equations:
 - a. $3x^3 15x = 0$ b. $x^3 - 3x^2 - 10x = 0$
- 17. Find all the roots of $h(x) = x^3 + x^2 17x + 15$
- 18. Write a polynomial function (in function form) of least degree with leading coefficient of 1 and zeros:
 - a) 3, -1, and -2 b) 3 and 2i
- 19. Sketch a graph of a polynomial function *f* that has the given characteristics.
 - The graph has these three x-intercepts at x = -1, x = 1, and x = 3
 - f has a local maximum at f(2)
 - f has a local minimum at f(0)
- 20. Graph the function f(x) = (x + 1)(x 1)(x 2)(include specific points between and beyond the x-intercepts)

16.. List the *possible* rational roots of $h(x) = x^4 - 3x^3 + x^2 - 4x - 6$

14. Solve the equation by factoring $2x^2 - 5x - 3 = 0$