Section 5.2: Synthetic division

#1- 10:

a) Perform the division using synthetic division.

b) if the remainder is 0 use the result to completely factor the dividend (the dividend is the numerator or the polynomial to the left of the division sign.)

1) $\frac{3x^3-17x^2+15x-25}{x-5}$

2) $\frac{5x^3+18x^2+7x-6}{x+3}$

3) $\frac{4x^3+8x^2-9x-18}{x+2}$

4) $\frac{9x^3-18x^2-16x+32}{x-2}$.

5) $\frac{3x^3-16x^2-72}{x-6}$

6) $\frac{5x^3-6x^2+8}{x-4}$

7) $(5x^3 + 6x + 8) \div (x + 2)$

8) $(x^3 + 512) \div (x + 8)$

9) $(x^3 - 27) \div (x - 3)$

10) $(x^3 + 5x^2) \div (x + 5)$

#11 – 20:

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 a to solve f(x) = 0

11) $f(x) = x^3 + 2x^2 – 5x – 6$

12) $f(x) = x^3 + 8x^2 + 11x -20$

13) $f(x) = 2x^3 – 13x^2 + 24x – 9$

14) $f(x) = 2x^3 – 5x^2 – 4x + 12$

15) $f(x) = 6x^3 – 29x^2 – 62x + 120$

16) $f(x) = 6x^3 – 43x^2 + 5x + 14$

17) $f(x) = x^3 – 3x^2 + 4x – 12$

18) $f(x) = x^3 – 4x^2 + 9x – 36$

19) $f(x) = x^3 + 4x^2 + 25x + 100$

20) $f(x) = x^3 + 5x^2 + 16x + 80$