Name: _____ Date:_____

Preliminary Lesson Ch4: Using Ti-83 Graphing Calculator & Long Division

1. For each of the following equations, find the zeroes using a Ti-83:

a) $y = 0.6x^3 - 0.5x^2 - 6x + 5$	b) $y = -0.2x^3 - 2.5x^2 - 6.5x + 5$
c) $y = -x^3 - 7x^2 + 1.5x + 13$	d) $y = (3x - 4)^2 (2x + 3) - 1$
e) $y = 1.4x^3 - 10x^2 - 3x + 15$	f) $y = (x - 3)^2 (2x + 5)^2$

2. For each of the following systems of equations, find the intersection points

a) $\begin{aligned} y - x &= 10 \\ -2x - 3y &= -6 \end{aligned}$	b) $\begin{aligned} -5x - 7y &= 6 \\ -3x - 5y &= -10 \end{aligned}$
c) $\begin{aligned} y &= 3x^2 + 20x \\ y + 12 &= -17x \end{aligned}$	d) $\begin{aligned} y &= 5x^2 - 10x - 2 \\ y &= 2x + 7 \end{aligned}$
e) $\begin{aligned} -2x + 2y &= 3 \\ x^2 + y^2 &= 36 \end{aligned}$	f) $\begin{aligned} 3x - 4y &= -5 \\ x^2 + y^2 &= 81 \end{aligned}$

g) $\frac{-4}{x+2} = x+7$	h) $\sqrt{1-2x} = \frac{1}{2}x+3$
i) $\lvert 4-3x \rvert = 2x+1$	j) $\lvert 2x+1 \rvert + \lvert 4-3x \rvert = 18$

3. For each of the following polynomials indicate the coordinates of all the local and absolute maximums and minimums.

a) $y = 0.5x^3 - 0.4x^2 - 7x + 4$	b) $y = -0.4x^3 - 3.5x^2 - 5.5x + 4$
c) $y = -x^3 - 7x^2 + 1.5x + 13$	d) $y = x^3 - 3x^2 - 4x + 13$
e) $1.3x^3 - 10x^2 - 3x + 15$	f) $y = -0.3x^3 - 6x^2 + 10x - 2$

4. Use Long division to divide each of the following and write your division statement: $D = PQ + R$

a) $16x^3 + 28x^2 + 24x + 64 \div (4x+8)$	b) $9x^3 - 21x^2 - 8x + 12 \div (3x-2)$

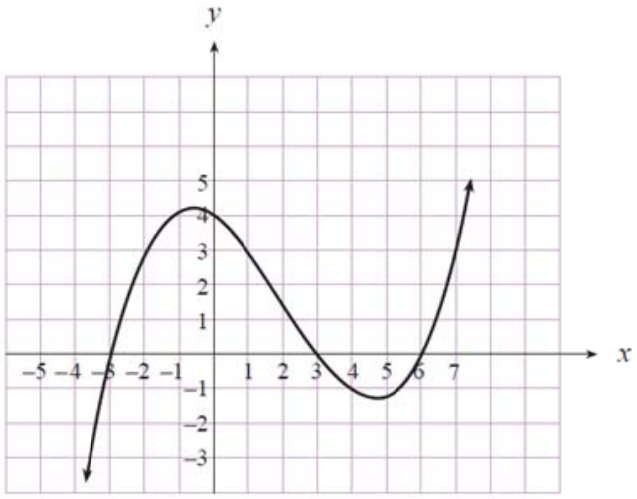
c) $-x^3-8x^2-8x+8 \div (-x-1)$	d) $12x^4+26x^3+10x^2-x+14 \div (4x^2-2x+2)$
e) $-16x^4-4x^3-34x^2-27x-40 \div (-2x^2+2x-5)$	f) $27x^4-30x^2+32x-9 \div (3x^2-2x+1)$

5. Use synthetic division to divide each of the following equation and find the quotient:

a) $\dfrac{2x^3+20x^2+41x-14}{x+7}$	b) $\dfrac{x^3-82x-7}{x+9}$
c) $\dfrac{2x^3+7x^2-76x-36}{x+8}$	d) $\dfrac{3x^3-28x^2+8x+26}{3x-4}$
e) $\dfrac{-6x^3+13x^2+14x-24}{3x+8}$	f) $\dfrac{4x^3-24x^2+21x+15}{2x-3}$

6. Find the remainder when $x^{13}+1$ is divided by $x-1$

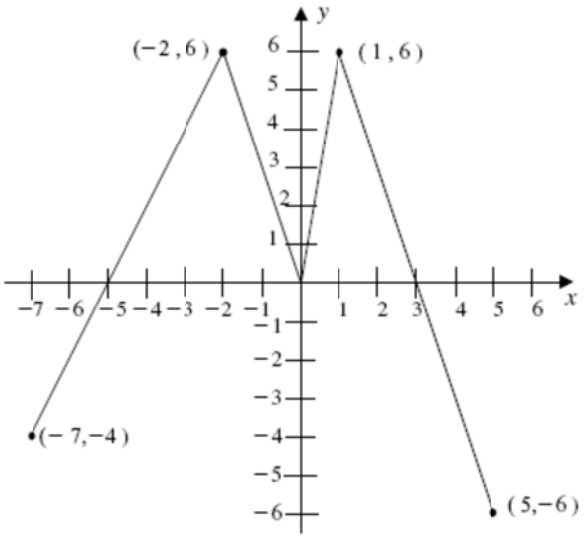
7. Given the graph of $y = f(x)$, what is the remainder when $f(x)$ is divided by i) $x-1$ and ii) $x+3$?



8. Given the table of values for $y = f(x)$, what is the remainder when $f(x)$ is divided by x^2-1?

x	$f(x)$
-1	3
0	6
1	2
2	-10

9. The graph of the function "f" is shown below. How many solutions does the equation $f(f(x)) = 6$ have?



(A) 2 **(B)** 4 **(C)** 5 **(D)** 6 **(E)** 7