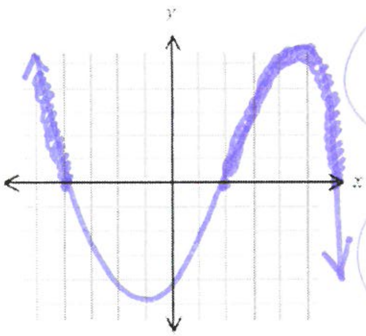
***AAT** (4.1-4.3) Name: Key

**Chapter 4 (FA1)** Date: ______________ Period: ______ +8

1. Find all values of x such that f(x) > 0 and all x such that f(x) < 0, and then sketch the graph of $f(x) = -\frac{1}{8}(x+4)(x-2)(x-6)$.



$(-\infty,-4)\cup(2,6)$

f(x) > 0 if x < -4 or 2 < x < 6

f(x) < 0 if -4 < x < 2 or x > 6

$(-4,2)\cup(6,\infty)$

+2

2. Use the remainder theorem to find f(-2) if $f(x) = x^4 + 3x^2 - 12$.

$$\begin{array}{r|rrrrr} -2 & 1 & 0 & 3 & 0 & -12 \\ & & -2 & 4 & -14 & 28 \\ \hline & 1 & -2 & 7 & -14 & 16 \end{array}$$

+1

3. Use synthetic division to find the quotient and remainder if the first polynomial is divided by the second.

$-2x^4 + 10x - 3$; $x - 3$

$$\begin{array}{r|rrrrr} 3 & -2 & 0 & 0 & 10 & -3 \\ & & -6 & -18 & -54 & -132 \\ \hline & -2 & -6 & -18 & -44 & -135 \end{array}$$

+2

Q: $-2x^3 - 6x^2 - 18x - 44$; R: $-135$

***AAT** (4.1-4.3) Name: ______________________

**Chapter 4 (FA1)** Date: ______________ Period: ______

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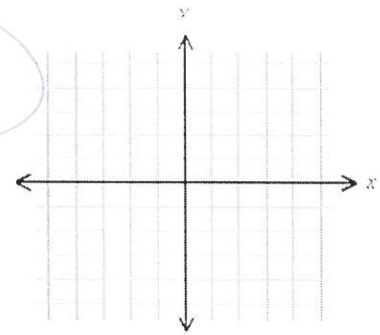

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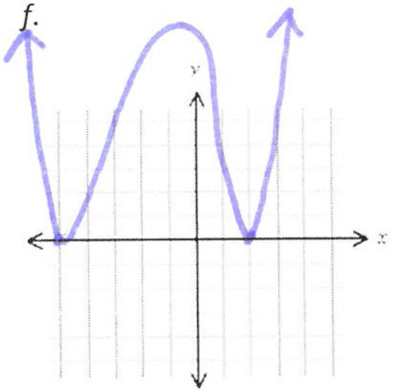
3. Use synthetic division to find the quotient and remainder if the first polynomial is divided by the second.

$-2x^4 + 10x - 3$; $x - 3$

4. Find a polynomial f(x) of degree 4 with leading coefficient 1 such that both -5 and 2 are zeros of multiplicity 2, and sketch the graph of *f*.



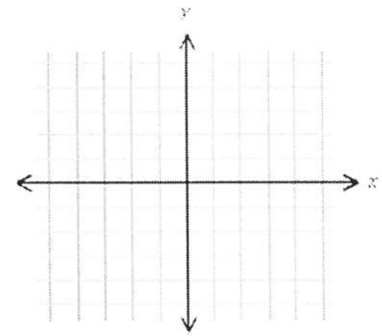

+1

$f(x) = a(x+5)^2(x-2)^2$ +1

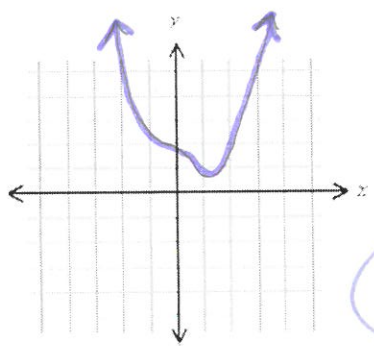
$\{a=1\}$ $= 1(x^2+10x+25)(x^2-4x+4)$

$= x^4+6x^3-11x^2-60x+100$

4. Find a polynomial f(x) of degree 4 with leading coefficient 1 such that both -5 and 2 are zeros of multiplicity 2, and sketch the graph of *f*.




5. Graph to determine the number of positive, negative, and nonreal complex solutions of the equation $2x^4 - x^3 + x^2 - 3x + 4 = 0$.




+1

4 NR (non-real) Solutions

5. Graph to determine the number of positive, negative, and nonreal complex solutions of the equation $2x^4 - x^3 + x^2 - 3x + 4 = 0$.