HS MATH 3	3.3| Add and Subtract Polynomials
DATE: 4	*A Develop Understanding Task* *Mathematics Vision Project*

ESSENTIAL QUESTION(S): How do you add or subtract polynomials? How do you add or subtract graphs?

REVIEW:

Linear

$y = mx + b$

exponent of 1

Quadratic

$y = ax^2 + bx + c$

or

$y = a(x-h)^2 + k$

exponent of 2

Cubic

$y = ax^3 + bx^2 + cx^1 + d$

or

$y = a(x-h)^3 + k$

(h,k) midpoint

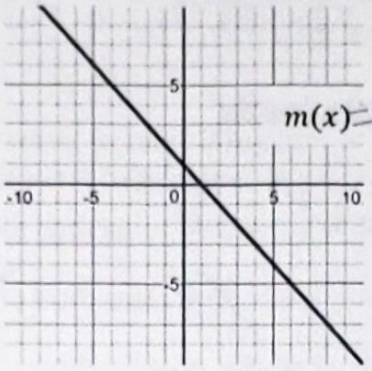
NOTES:

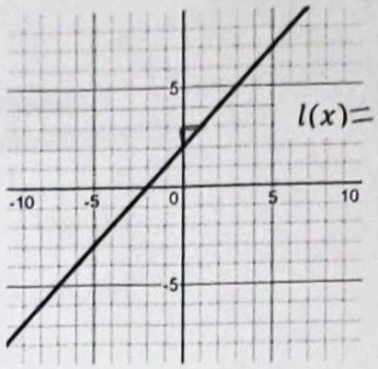
Adding Polynomials:

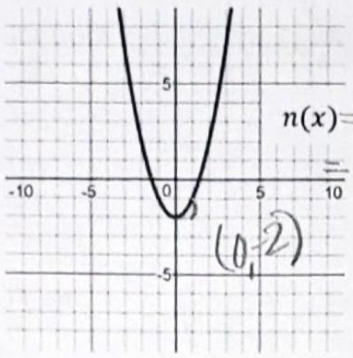
Use the following polynomials below to find the specified sums.

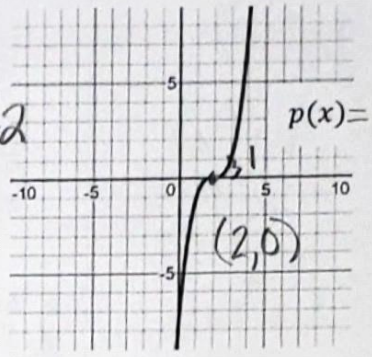
$f(x) = x^3 + 3x^2 - 2x + 10$ $\quad g(x) = 2x - 1$

$h(x) = 2x^2 + 5x - 12$ $\quad k(x) = -x^2 - 3x + 4$









Find:

a. $h(x) + k(x)$

$2x^2 + 5x - 12$

$(+)\ -1x^2 - 3x + 4$

$x^2 + 2x - 8$

b. $g(x) + f(x)$

$2x - 1$

$(+)\ x^3 + 3x^2 - 2x + 10$

$x^3 + 3x^2 + 9$

c. $f(x) + k(x)$

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

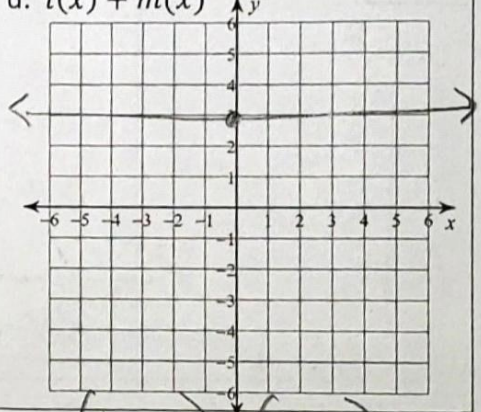
$(+)\ -x^2 - 3x + 4$

$x^3 + 2x^2 - 5x + 14$

OR

$(x^3 + 3x^2 - 2x + 10) + (-x^2 - 3x + 4)$

d. $l(x) + m(x)$



$(1x+2) + (-x+1) = 3$

e) $-x+1$

(+) x^2-2

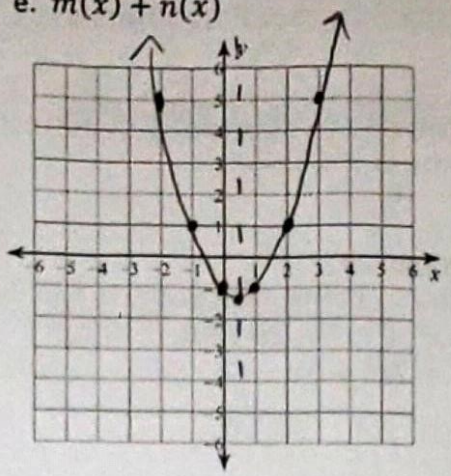
x^2-x-1

f) $x^3+3x^2-2x+10$

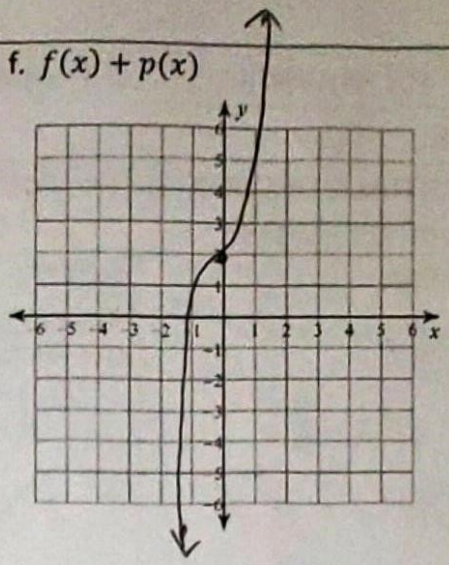
(+) $x^3-6x^2+12x-8$

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

e. $m(x)+n(x)$



f. $f(x)+p(x)$



Subtracting Polynomials:

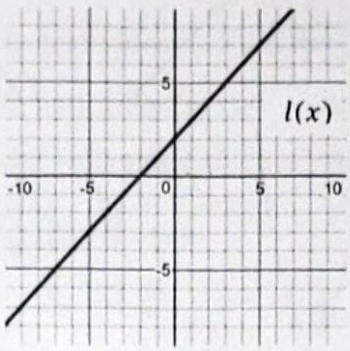
Example 1:

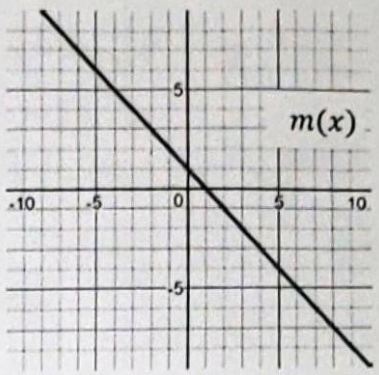
$f(x) = x^3 + 2x^2 - 7x - 8$

$h(x) = 4x^2 - x - 15$

$g(x) = -4x - 7$

$k(x) = -x^2 + 7x + 4$





a. $h(x)-k(x)$

$4x^2-x-15$

(−) $-x^2+7x+4$

$5x^2-8x-19$

$-1-7$

$-15-4$

$-4--1$

b. $f(x)-h(x)$

x^3+2x^2-7x-8

(−) $4x^2-x-15$

x^3-2x^2-6x+7

$2-4$

$-7--1$

$-8--15$

c. $f(x)-g(x)$

x^3+2x^2-3x-1

d. $k(x)-f(x)$

$-x^3-3x^2+14x+12$

$l(x)-m(x)$

$l(x)$

x	y
-2	0
-1	1
0	2
1	3
2	4

$m(x)$

x	y
-2	3
-1	2
0	1
1	0
2	-1

subtracted

x	y
-2	-3
-1	-1
0	1
1	3
2	5

*Subtract or add y values only!

f. $l(x)-m(x)$

$x+2$

(−) $-x+1$

$2x+1$