HW 3I #1bc, 2bc

3J #1a, #2

#2b

quotient: $3x^2 - 2x + 1$

$x^2 + 2x + 3 \overline{)\, 3x^4 + 4x^3 + 6x^2 - 2x + 6}$

$-3x^4 - 6x^3 - 9x^2$

$-2x^3 - 3x^2 - 2x$

$+2x^3 + 4x^2 + 6x$

$x^2 + 4x + 6$

$-x^2 - 2x - 3$

remainder → $2x + 3$

The graph of $y = \dfrac{3x^4 + 4x^3 + 6x^2 - 2x + 6}{x^2 + 2x + 3}$

has a non-vertical asymptote at

$y = 3x^2 - 2x + 1$

$y = 3x^2 - 2x + 1 + \dfrac{2x + 3}{x^2 + 2x + 3}$

as $x \to \infty$, $\dfrac{2x+3}{x^2+2x+3} \to 0$

(2c)

$$x^2+x+1 \overline{)\, x^4 - x^3 + x - 1}$$

$$x^6 + x - 1$$
$$-x^6 - x^5 - x^4$$
$$-x^5 - x^4$$
$$+x^5 + x^4 + x^3$$
$$x^3 + x$$
$$-x^3 - x^2 - x$$
$$-x^2 - 1$$
$$+x^2 + x + 1$$
$$x$$

check

Let $x = 3$

$3^2+3+1 \overline{)\, 3^6+3-1}$

$$56$$
$$13 \overline{)\, 731}$$
$$65$$
$$81$$
$$78$$
$$3$$

$x = 3$

$x^4 - x^3 + x - 1$

$3^4 - 3^3 + 3 - 1$

$81 - 27 + 2 = 56$

(3J) #1c

-2	1	0	-3	0	-2	1
		-2	4	-2	4	-4
	1	-2	1	-2	2	-3

q: $x^4 - 2x^3 + x^2 - 2x + 2$

r: -3

HW quiz 9/18

p.124

(1) Show all work for 3H #5

(2) Find the quotient and remainder:

$3x^3 + x - 1 \div x^2 + 2x - 1$

3Q #1a $x^3 - 6x^2 + 11x - 6 \geq 0$

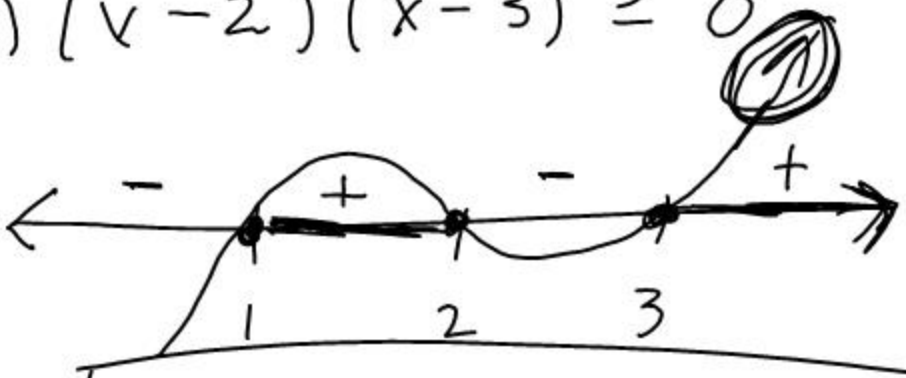
11 | 1 −6 11 −6

1 −5 6

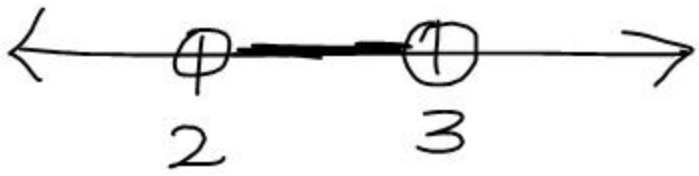
1 −5 6 | 0

$(x-1)(x^2 - 5x + 6) \geq 0$

$(x-1)(x-2)(x-3) \geq 0$



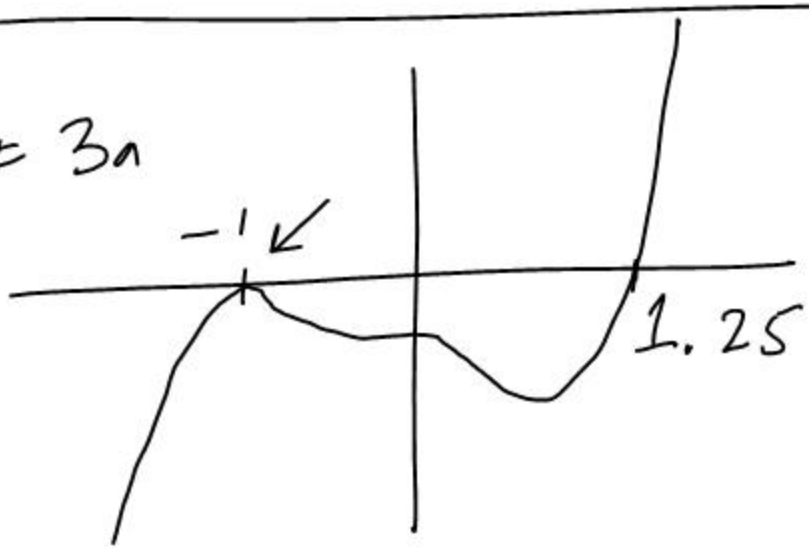
$[1, 2] \cup [3, \infty)$

Ex. 

USA : $(2, 3)$

IR : $]2, 3[$

3a



$]-1, -0.921[\cup]1.26, \infty[$

3Q #1, 2