

2.5 Part 1

HW Check your outline pg 223-225

$$(x+2)(x-1)(x-4)$$

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

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

$$2x^3 - 6x^2 - 12x + 16$$

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$$f(2)$$

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

$$8 + 6 - 4 = 10$$

Not a factor

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25)  $(x+3)(x-1)(x-3.4)$

-3	5	-7	-49	51	
	↓	-15	66	-51	yes a factor
1	5	-22	17	0	factor
		5	-17		yes
3.4	5	-17	0		factor
		17			yes
	5	0			factor

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$$f(x) = (x-2i)(x+2i)$$

	x	2i
x	$x^2$	$2ix$
-2i	$-2ix$	$-4i^2$

$i^2 = -1$

$$x^2 + 4$$

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Homework Questions

2.5 Part 1

HW pg 233-236

QR 3, 5, 6 | EXS 1, 4, 11, 12, 14, 16-21  
 Quick Review 24, 33, 34, 38, 40, 41

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(b)  $(x-5)(x-\sqrt{2}i)(x+\sqrt{2}i)$

	$x$	$\sqrt{2}i$	
$x$	$x^2$	$\sqrt{2}ix$	$i^2 = -1$
$\sqrt{2}i$	$\sqrt{2}ix$	$-2i^2$	$-2 \cdot -1$

$(x^2+2)(x-5)$

	$x$	$-5$
$x^2$	$x^3$	$-5x^2$
$2$	$2x$	$-10$

$x^3 - 5x^2 + 2x - 10$

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230  
 ex 2  
 $-3, 4, 2, -i, i$

$(x+3)(x-4)(x-2)(x+i)(x-i)$

	$x$	$-i$	
$x$	$x^2$	$-ix$	$i^2 = -1$
$i$	$ix$	$-i^2$	$-1 \cdot -1$

$x^2 + 1$

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ex 4  
 $x^5 - 3x^4 - 5x^3 + 5x^2 - 6x + 8$

$x = -2, 1, 4$

$-2 \mid 1 \ -3 \ -5 \ 5 \ -6 \ 8$

$x^5 \downarrow -2 \ 10 \ -10 \ 10 \ -8$

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$1 \mid 1 \ -5 \ 5 \ -4 \ 0$

$x^4 \downarrow 1 \ -4 \ 1 \ -4$

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$4 \mid 1 \ -4 \ 0 \ 4 \ 0$

$x^3 \downarrow 1 \ 0 \ 1 \ 0$

$x^2 + 0x + 1$

$x^2 + 1$

$(x+i)(x-i)(x-4)(x-1)(x+2)$

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ex 5  
 $z = \frac{-1 \pm \sqrt{1-2i}}{1+2i}$

$1+2i \mid 4 \ 0 \ 17 \ 14 \ 65$

$\downarrow 4 \ 8 \ -12 \ 16 \ -23 \ 26 \ -65$

$4 \ 4 \ 8 \ 5 \ 16 \ 13 \ 26 \ 10$

$4-8i$

$1 \ 4 \ 8 \ 13 \ 17 \ 21 \ 25 \ 29 \ 33 \ 37 \ 41$

$4-16i-16$

$-12-16i$

$+2i \ 4 \ 4-8i \ 5-16i \ -13-26i$

$\downarrow 4+8i \ 8+16i \ 13+26i$

$x^2 \ 4 \ 8 \ 13 \ 0$

$\frac{4x^2+8x+13}{a} = \frac{-b \pm \sqrt{b^2-4ac}}{2a}$

$\frac{-8 \pm \sqrt{64-4(4)(13)}}{2(4)}$

$\frac{-8 \pm \sqrt{64-208}}{8}$

$\frac{-8 \pm \sqrt{-144}}{8} \sqrt{-1} = i$

$\frac{-8 \pm i\sqrt{144}}{8} = \frac{-8 \pm 12i}{8}$

$\frac{-2 \pm 3i}{2} = -1 \pm \frac{3i}{2}$

$= -1 \pm 3i/2, -1 - 3i/2$

$(x-1+3i/2)(x-1-3i/2)$

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