Algebra 2 Quiz Tomorrow! Please Review! Name _____ ID: 1

Long and Synthetic Division Review

Date 10/5/17 Period 1

Divide using Long Division. Long Division

1) $(x^3 + 3x^2 - 28x - 62) \div (x + 6)$

$x^2 - 3x - 10 + \frac{-2}{x+6}$

2) $(a^3 - 4a^2 + 5a - 55) \div (a - 5)$

$a^2 + 1a + 10 + \frac{-5}{a-5}$

3) $(k^3 + 16k^2 + 61k + 3) \div (k + 10)$

$k^2 + 6k + 1 + \frac{-7}{k+10}$

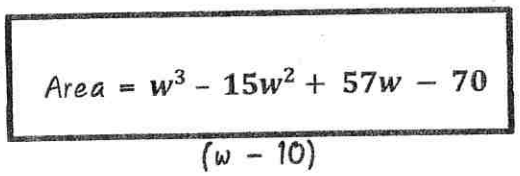
4) $(p^3 + 15p^2 + 58p + 71) \div (p + 10)$

$p^2 + 5p + 8 + \frac{-9}{p+10}$

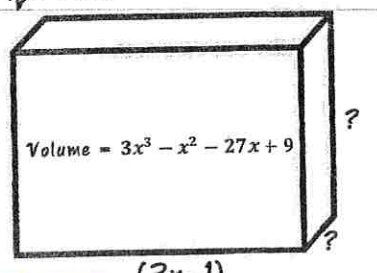
Any Method you would like. Yes, something like this will be on quiz!

Find the missing dimensions:

5.

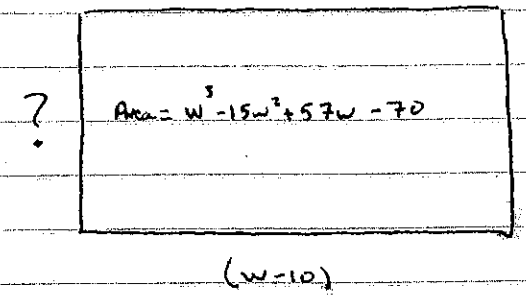


6.



SEE NOTEBOOK PAPER

#5



$A = l \cdot w$

$\frac{w^3 - 15w^2 + 57w - 70}{(w-10)} = \frac{(w-10) \cdot l}{w-10}$

$= l$

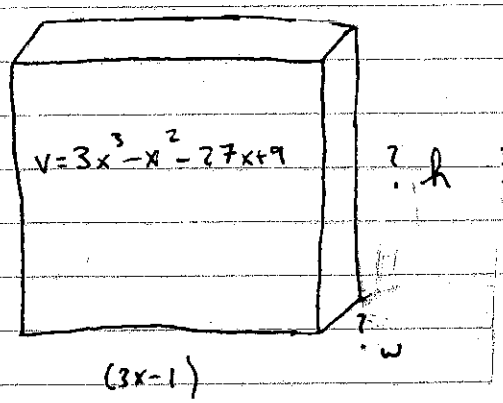
10	1	−15	57	−70
	↓	10	−50	70
	1	−5	7	0

$= l$

length = $x^2 - 5x + 7$

$(x^2 - 5x + 7) = l$

#6



$V = l \cdot w \cdot h$

$\frac{3x^3 - x^2 - 27x + 9}{(3x-1)} = l \cdot w \cdot \frac{(3x-1)}{(3x-1)}$

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

↑ length ↑ width ↑ height

$x^2 - 9$

$3x-1 \overline{)\, 3x^3 - x^2 - 27x + 9}$

difference of squares

$x^2 - 9 = l \cdot w$

$(x+3)(x-3) = l \cdot w$

$l = (x+3)(x-3) = w$

5) $(x^4 - 2x^3 - 52x^2 + 36x - 28) \div (x - 8)$

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

$x - 8 \overline{)x^4 - 2x^3 - 52x^2 + 36x - 28}$

$+ - x^4 \mp 8x^3$

$6x^3 - 52x^2$

$+ - 6x^3 \mp 48x^2$

$-4x^2 + 36x$

$+ \mp 4x^2 \mp 32x$

$4x - 28$

$+ 4x \mp 32$

4

$3 + 6x^2 - 4x + 4 + \frac{4}{x - 8}$

6) $(-4n^2 - 24 + n^4 - 9n) \div (2 + n)$

$n^3 - 2n^2 + 0n - 9$

$n + 2 \overline{)n^4 + 0x^3 - 4n^2 - 9n - 24}$

$+ n^4 \mp 2n^3$

$-2n^3 - 4n^2$

$+ \mp 2n^3 \mp 4n^2$

$0n^2 - 9n$

$+ 0n^2 + 0n$

$-9n - 24$

$+ \mp 9n \mp 18$

-6

$n^3 - 2n^2 - 9 + 6 + \frac{-6}{n}$

7) $(r^4 + 12r^3 + 25r^2 + 48r - 18) \div (r + 10)$

$r^3 + 2r^2 + 5r - 2$

$r + 10 \overline{)r^4 + 12r^3 + 25r^2 + 48r - 18}$

$+ - r^4 \mp 10r^3$

$2r^3 + 25r^2$

$+ - 2r^3 \mp 20r^2$

$5r^2 + 48r$

$+ - 5r^2 \mp 50r$

$-2r - 18$

$+ \mp 2r \mp 20$

2

$+ 2r^2 + 5r - 2 + \frac{2}{r + 10}$

8) $(m^4 - 8m^3 + 8m - 69) \div (m - 8)$

$m^3 + 0m^2 + 0m + 8$

$m - 8 \overline{)m^4 - 8m^3 + 0m^2 + 8m - 69}$

$+ - m^4 \mp 8m^3$

$0m^3 + 0m^2$

$0m^2 + 0m^2$

$0m^2 + 8m$

$0m^2 + 0m$

$8m - 69$

$+ - 8m \mp 64$

-5

$m^3 + 8 + \frac{-5}{m - 8}$

Divide using Synthetic Division.

Synthetic Division

9) $(9x^3 - 73x^2 + 71x - 10) \div (x - 7)$

7 | 9 −73 71 −10

↓ + + +

63 −70 7

9 −10 1 −3

$9x^2 - 10x + 1 + \frac{-3}{x - 7}$

10) $(6n^3 + 47n^2 + 2n + 72) \div (n + 8)$

−8 | 6 47 2 72

↓ + + +

−48 −8 −80

6 −1 10 −8

$6n^2 - 1n + 10 + \frac{-8}{n + 8}$

11) $(b^3 + 4b^2 - 6b + 2) \div (b - 1)$

1 | 1 4 -6 2
↓ + + +
1 5 -1
1 5 -1 1

$b^2 + 5b - 1 + \frac{1}{b-1}$

12) $(v^3 - 12v^2 + 30v + 6) \div (v - 8)$

8 | 1 -12 30 6
↓ + + +
8 -32 -16
1 -4 -2 -10

$v^2 - 4v - 2 + \frac{-10}{v-8}$

13) $(2x^3 - 15x^2 - 42x - 88) \div (x - 10)$

10 | 2 -15 -42 -88
↓ + + +
20 50 80
2 5 8 -8

$2x^2 + 5x + 8 + \frac{-8}{x-10}$

14) $(n^4 + 5n^3 + 3n + 12) \div (n + 5)$

-5 | 1 5 0 3 12
↓ + + + +
-5 0 0 -15
1 0 0 3 -3

$n^3 + 3 + \frac{-3}{n+5}$

15) $(-3a^3 + a^4 - 47a^2 - 21 + 37a) \div (a + 6)$

-6 | 1 -3 -47 37 -21
↓ + + + +
-6 54 -42 30
1 -9 7 -5 9

$a^3 - 9a^2 + 7a - 5 + \frac{9}{a+6}$

16) $(4k^4 + 32k^3 - 45k^2 - 87k - 64) \div (k + 9)$

-9 | 4 32 -45 -87 -64
↓ + + + +
-36 36 81 54
4 -4 -9 -6 -10

$4k^3 - 4k^2 - 9k - 6 + \frac{-10}{k+9}$