Algebra 2 Bellwork Monday, December 15, 2014

Find each quotient. Give any remainder in any form you wish.

1. $\dfrac{3x^3 - 5x^2 - 29x + 17}{x - 4}$

2. $\dfrac{6x^4 - 27x^3 + 22x^2 - 45x + 20}{3x^2 + 5}$

3. Is $x + 6$ a factor of $5x^4 + 21x^3 - 53x^2 - 5x - 66$?

4. What is the remainder of this quotient? $\dfrac{4x^3 + 2x^2 - 11x + 15}{x - 1}$

5. Given $2x - 3$ is a factor of $2x^3 - 7x^2 - 42x + 72$ use polynomial division to help find the other two factors.

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ANSWERS

Find each quotient. Give any remainder in any form you wish.

1. $\dfrac{3x^3 - 5x^2 - 29x + 17}{x - 4}$

$3x^2 + 7x - 1 \quad R = 13$

$x-4 \;\big|\; 3x^3 - 5x^2 - 29x + 17$

$-\,(3x^3 - 12x^2)$

$7x^2 - 29x$

$-\,(7x^2 - 28x)$

$-x + 17$

$-x + 4$

13

2. $\dfrac{6x^4 - 27x^3 + 22x^2 - 45x + 20}{3x^2 + 5}$

$2x^2 - 9x + 4$

$3x^2+5 \;\big|\; 6x^4 - 27x^3 + 22x^2 - 45x + 20$

$6x^4 \quad + 10x^2$

$-27x^3 + 12x^2 - 45x$

$-27x^3 \quad - 45x$

$12x^2 + 20$

$-\,(12x^2 + 20)$

0

3. Is $x + 6$ a factor of $5x^4 + 21x^3 - 53x^2 - 5x - 66$?

$5(-6)^4 + 21(-6)^3 - 53(-6)^2 - 5(-6) - 66 = 0$ YES

4. What is the remainder of this quotient? $\dfrac{4x^3 + 2x^2 - 11x + 15}{x - 1}$

$4(1)^3 + 2(1)^2 - 11(1) + 15 = 10$ $R = 10$

5. Given $2x - 3$ is a factor of $2x^3 - 7x^2 - 42x + 72$ use polynomial division to help find the other two factors.

$x^2 - 2x - 24$

	$2x^3$	$-4x^2$	$-48x$	0
-3	$-3x^2$	$6x$	$+72$	

$2x$

$-3x^2 + ? = -7x^2 \rightarrow -4x^2$

$? = -42x \rightarrow -48x$

$x^2 - 2x - 24 = (x-6)(x+4)$

-24

$-6 \quad 4$

-2