Algebra 2 Bellwork Friday, January 8, 2018

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

1. $\frac{3x^3 - 29x + 17}{x - 4}$

2. $\frac{6x^4 + 10x^3 + 33x^2 + 10x - 75}{3x + 5}$

3. $2x^3 - 7x^2 - 42x + 72$ can be factored into ( )( )( ). Given $2x - 3$ is a factor use polynomial division to help find the other two factors.

Hint: Divide $2x^3 - 7x^2 - 42x + 72$ by $2x - 3$ and factor the quotient into the other two factors.

Algebra 2 Bellwork Friday, January 8, 2018 ANSWERS

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

1. $\frac{3x^3 - 29x + 17}{x - 4} = 3x^2 + 12x + 19$ R = 93

$$
\begin{array}{r}
3x^2 + 12x + 19 \\
x-4 \;\overline{)\; 3x^3 + 0x^2 - 29x + 17} \\
-\,(3x^3 - 12x^2) \\
\hline
12x^2 - 29x \\
-\,(12x^2 - 48x) \\
\hline
19x + 17 \\
-\,(19x - 76) \\
\hline
93
\end{array}
$$

2. $\frac{6x^4 + 10x^3 + 33x^2 + 10x - 75}{3x + 5} = 2x^3 + 11x - 15$

$2x^3 + 0x^2 + 11x - 15$

$3x$	$6x^4$	$0x^3$	$+33x^2$	$-45x$	0
$+5$	$10x^3$	$0x^2$	$+55x$	-75	

3. $2x^3 - 7x^2 - 42x + 72$ can be factored into ( )( )( ). Given $2x - 3$ is a factor use polynomial division to help find the other two factors.

Hint: Divide $2x^3 - 7x^2 - 42x + 72$ by $2x - 3$ and factor the quotient into the other two factors.

$$
\begin{array}{r}
x^2 - 2x - 24 \\
2x-3 \;\overline{)\; 2x^3 - 7x^2 - 42x + 72} \\
-\,(2x^3 - 3x^2) \\
\hline
-4x^2 - 42x \\
-\,(-4x^2 + 6x) \\
\hline
-48x + 72 \\
-48x + 72 \\
\hline
0
\end{array}
$$

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

-24, -6, $+4$, -2

$2x^3 - 7x^2 - 42x + 72 = (2x-3)(x-6)(x+4)$