

Alg 2 2.6 Homework

Question 1.

Use long division to find the quotient and remainder. Enter the result in the form *dividend = (divisor)(quotient) + remainder*.

$$(17x^3 - 7x^2 - 80x + 48) \div (x^2 - 9)$$

$$17x^3 - 7x^2 - 80x + 48 = (x^2 - 9) \left(\boxed{}x - \boxed{} \right) + \boxed{}x - \boxed{}$$

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Question 2.

Given a polynomial $p(x)$, use synthetic division to divide by $x - a$ and obtain the quotient and the (nonzero) remainder. Enter the result in the form $p(x) = (x - a)(\text{quotient}) + p(a)$.

$$(5x^3 + 23x^2 - 304x - 61) \div (x - 6)$$

$$(5x^3 + 23x^2 - 304x - 61) = (x - 6)\left(\boxed{}x^2 + \boxed{}x + \boxed{}\right) + \boxed{}$$

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Question 3.

Given $p(x)$, find $p(-2)$ by using synthetic substitution.

$$p(x) = -x^4 + 2x^3 - 4x + 39$$

$$p(-2) = \boxed{}$$

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Question 4.

Determine whether the given binomial is a factor of the polynomial $p(x)$.

$p(x) = 9x^4 + 71x^3 - 385x + 30; (x + 7)$

Since the remainder is , $(x + 7)$ a factor.

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Question 5.

Two students used synthetic division to divide $2x^3 - 7x - 2$ by $x - 5$. Determine which solution is correct. Find the error in the other solution.

A	B
$\begin{array}{r rrrr} 5 & 2 & 0 & -7 & -2 \\ & & 10 & 50 & 215 \\ \hline & 2 & 10 & 43 & 213 \end{array}$	$\begin{array}{r rrrr} -5 & 2 & 0 & -7 & -2 \\ & & -10 & 50 & -215 \\ \hline & 2 & -10 & 43 & -217 \end{array}$

Student is correct. Student used the incorrect sign of a .
