

U2 Day 5 Polynomial and Synthetic Division - HOMEWORK

Use polynomial division to find the quotient and remainder, if any. Remember to add +0x for any missing terms! SHOW ALL work!

<p>1.</p> $x - 1 \overline{) x^3 + 2x^2 + x - 3}$	<p>2.</p> $3x + 4 \overline{) 6x^3 + 2x^2 - 11x + 12}$	<p>3.</p> $x - 1 \overline{) x^3 - 3x^2} \quad - 10$
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Use synthetic division to determine whether the binomial is a factor of $(x^3 + 3x^2 - 10x - 24)$. If it is, the remainder will be zero.

4. $(x + 4)$	5. $(x - 3)$	6. $(x + 6)$	7. $(x + 2)$
Yes No	Yes No	Yes No	Yes No

Synthetic Division. Check the graph to see if your answer is correct: there will be an x-int at the divisor number.

8. $(x^3 + 3x^2 - 10x - 24) \div (x - 3)$	9. $(-2x^3 + 15x^2 - 22x - 15) \div (x - 3)$	10. $(x^3 - 5x^2 - 7x + 25) \div (x - 5)$
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Use Synthetic Division and the Remainder Theorem to find $P(a)$.

11. $P(x) = 3x^3 - 4x^2 - 5x + 1; a = 2$	12. $P(x) = x^3 + 6x^2 + 10x + 3; a = -3$	13. $P(x) = 2x^4 - 9x^3 + 7x^2 - 5x + 11; a = 4$
$P(a) = \underline{\hspace{2cm}}$	$P(a) = \underline{\hspace{2cm}}$	$P(a) = \underline{\hspace{2cm}}$

Use Synthetic Division and the given factor to find the quadratic quotient. Write the quotient as a polynomial.

<p>14. $P(x) = x^3 + 3x^2 - 13x - 15; (x - 5)$</p> <p>The quotient is _____</p>	<p>15. $P(x) = x^3 - 3x^2 - 10x + 24; (x - 2)$</p> <p>The quotient is _____</p>
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