

Algebra 2 - Dividing Polynomials and the Remainder Theorem - Test

Common Core A-APR.B.2, A-APR.D.6 · maths-pdf.fr/en/

Name: _____ Class: _____ Date: ____/____/____

This 45-minute test on polynomial division and the Remainder Theorem has 9 questions worth 20 points in total. The questions move from direct skills to multi-step problems. Show your work, because partial credit is given for a correct setup and sound reasoning.

About this test

- Grade: Algebra 2
- Chapter: Dividing Polynomials and the Remainder Theorem
- Standards: A-APR.B.2, A-APR.D.6
- Time: 45 minutes
- Total: 20 points

Question 1 - Long division [3 pts]

Divide $2x^3+5x^2-14x+8$ by $2x-1$ using long division.

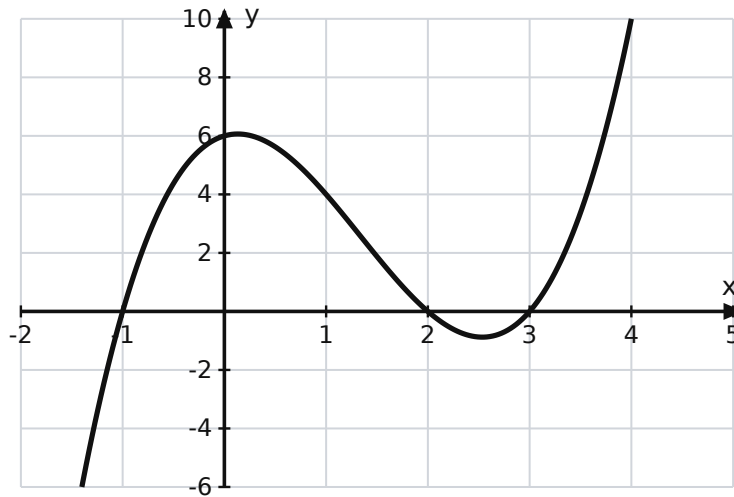
Question 2 - Synthetic division [3 pts]

Use synthetic division to divide $3x^3-5x^2+4$ by $x-2$. Write the result as a quotient plus a remainder term.

Question 3 - Remainder Theorem [2 pts]

Find the remainder when $x^3+2x^2-9x-18$ is divided by $x+3$. Is $x+3$ a factor?

Question 4 - Graph and factors [2 pts]



Graph of $p(x)$ with x -intercepts at $-1, 2, 3$.

The graph of a cubic polynomial $p(x)$ with leading coefficient 1 crosses the x -axis at $-1, 2$, and 3 . Write $p(x)$ in factored form and find $p(0)$.

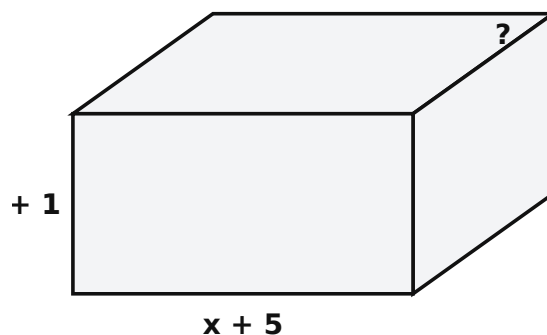
Question 5 - Find the unknown [2 pts]

The polynomial $x^3 - 3x^2 + kx + 10$ has a factor $x - 5$. Find k .

Question 6 - Quotient form [2 pts]

Write $\frac{x^2 + 4x + 7}{x + 1}$ in the form $q(x) + \frac{r}{x + 1}$.

Question 7 - Storage bin [2 pts]



Storage bin with unknown width.

A storage bin has volume $x^3 + 8x^2 + 17x + 10$ in³, length $x + 5$, and height $x + 1$. Find the width.

Question 8 - Find the error [2 pts]

1	1	2	-3
		1	3
	1	3	0

Jamal's work for $x^3 + 2x - 3$ divided by $x - 1$.

Jamal divided x^3+2x-3 by $x-1$ with the grid shown, using coefficients 1, 2, -3. Explain his error and find the correct quotient and remainder.

Question 9 - Factor completely [2 pts]

Given that $x+1$ is a factor of $x^3+6x^2+11x+6$, factor the polynomial completely.