

Brett Robbins Academic Consulting

Math 30-1 Practice Test

Polynomial Functions

10 Questions

Original practice questions written to the Alberta curriculum, in the style of past diploma examinations. Work through each question, then check your answers with the key at the end.

This practice test was made by AI and there may be mistakes. If a question or answer looks wrong, contact Brett for clarification.

Question 1

When $P(x) = 2x^3 - 5x^2 + 3x - 7$ is divided by $(x - 2)$, the remainder is

- A) 3
- B) -13
- C) 11
- D) -5

Question 2

Which of the following binomials is a factor of the polynomial

function $f(x) = x^3 - 2x^2 - 5x + 6$?

- A) $(x + 3)$
- B) $(x - 1)$
- C) $(x - 4)$
- D) $(x + 1)$

Question 3

For the function $f(x) = -3x^4 + 2x^2 - x + 5$, the degree and leading coefficient are

- A) Degree 4, leading coefficient 3
- B) Degree 5, leading coefficient -3
- C) Degree 4, leading coefficient -3
- D) Degree 2, leading coefficient -3

Question 4

If $P(x) = x^3 - 6x^2 + 11x - 6$, then the value of $P(3)$ is

- A) 0
- B) 6
- C) -2
- D) 2

Question 5

The x -intercepts of the graph of $y = 2(x + 3)(x - 1)(x - 4)$ are

- A) -3, 1, -4
B) -3, 1, 4
C) 3, -1, 4
D) 3, 1, -4

Question 6

When $2x^3 - 3x^2 - 8x + 12$ is divided by $(x - 2)$, the quotient is

- A) $2x^2 - x - 6$
B) $2x^2 + x + 6$
C) $2x^2 + x - 6$
D) $2x^2 - 7x + 6$

Question 7

When $x^3 + kx^2 - 5x + 3$ is divided by $(x + 2)$, the remainder is 13.

The value of k is

- A) 2
B) -2
C) 3
D) -3

Question 8

If $(x - 3)$ is a factor of $x^3 - 5x^2 + 2x + k$, then the value of k is

- [illegible]

Question 9

For the graph of $y = (x - 2)^2(x + 1)^3$, at $x = 2$

- A) The graph crosses the x -axis
at $x = 2$
- B) The graph touches the x -axis
and turns around at $x = 2$
- C) The graph crosses the x -axis
with a point of inflection at $x = 2$
- D) The graph has a vertical asymptote
at $x = 2$

Question 10

A polynomial function of degree 3 has zeros of $-4, 0$, and 5 .

The function could be

- A) $f(x) = x(x + 4)(x - 5)$
- B) $f(x) = x(x - 4)(x + 5)$
- C) $f(x) = x(x + 4)(x + 5)$
- D) $f(x) = x(x - 4)(x - 5)$

Answer Key

- | | | |
|------|------|-------|
| 1. D | 5. B | 9. B |
| 2. B | 6. C | 10. A |
| 3. C | 7. A | |
| 4. A | 8. D | |

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