NUNAVUT MATH 30-1 · 10 QUESTIONS

Polynomial Functions — Practice Test

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1 **When $x^3 + x^2 - 10x + 8$ is divided by $(x - 2)$, the quotient is**

- **A** $x^2 + 3x - 4$
- **B** $x^2 + 3x + 4$
- **C** $x^2 - x - 4$
- **D** $x^2 + 5x - 4$

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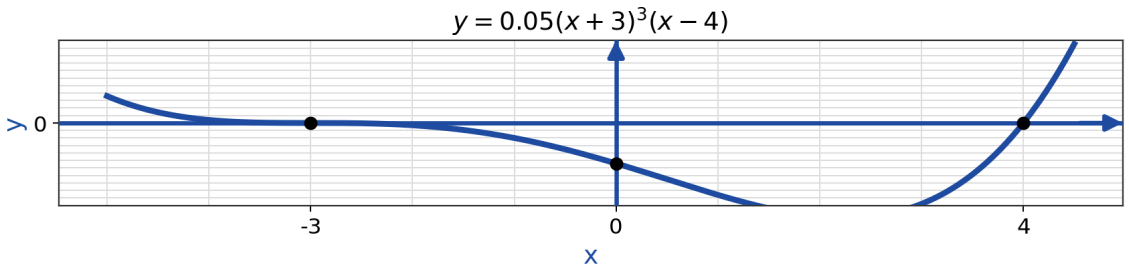
2 **The graph below shows a polynomial function. Which of the following statements about the graph at x = -3 is true?**



A The graph crosses the x-axis at x = -3 with multiplicity 2

B The graph touches the x-axis and turns around at x = -3

C The graph crosses the x-axis with a point of inflection at x = -3

D The graph has a vertical asymptote at x = -3

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3 **A rectangular piece of cardboard is 24 cm long and 16 cm wide. Squares of side length x cm are cut from each corner and the sides are folded up to form an open box. The volume of the box, in terms of x, is**

A $V(x) = x(24 - x)(16 - x)$

B $V(x) = x(24 - 2x)(16 - 2x)$

C $V(x) = (24 - 2x)(16 - 2x)$

D $V(x) = x(24 - 4x)(16 - 4x)$

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4 **When $x^3 + 2x^2 + kx - 5$ is divided by $(x - 1)$, the remainder is 4. The value of k is**

ANSWER _____

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5 The solutions to the equation $2x^3 + 5x^2 - 4x - 3 = 0$ are

- A $-3, -\frac{1}{}$
- B $-3, \frac{1}{}$
- C $3, -\frac{1}{}$
- D $-3, -\frac{1}{}$

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6 A cubic polynomial function has zeros of -2, 1, and 3. If P(0) = -12, then the value of P(2) is

- A -8
- B 4
- C 8
- D -4

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7 **For the polynomial function $P(x) = x^4 - 2x^3 - 13x^2 + 14x + 24$, two of the zeros are 4 and -1. The smallest zero of this function is**

ANSWER

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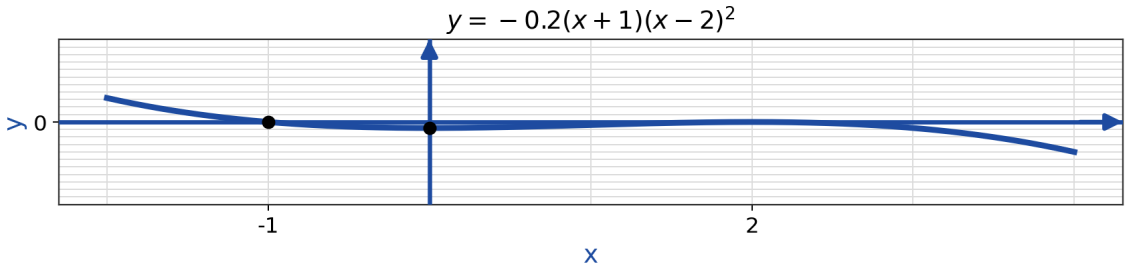
8 **The graph below shows a polynomial function. The x-intercept with multiplicity 2 is i, and the y-intercept is ii.**



A i: x = -1 ii: the y-intercept is positive

B i: x = 2 ii: the y-intercept is negative

C i: x = 2 ii: the y-intercept is positive

D i: x = -2 ii: the y-intercept is negative

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9 **Three statements about the polynomial function $P(x) = x^3 - 3x^2 - 6x + 8$ are shown below. Statement 1: $(x - 3)$ is a factor of $P(x)$. Statement 2: When $P(x)$ is divided by $(x + 1)$, the remainder is 10. Statement 3: $(x + 2)$ is a factor of $P(x)$. The two statements that are correct are**

- A 1 and 2
- B 1 and 3
- C 2 and 3
- D 1, 2, and 3

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10 **A quartic polynomial function has zeros of 1 (multiplicity 2), -2, and 4, and a y-intercept of 16. The value of P(3) is**

ANSWER _____

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ANSWER KEY

1. A
2. C
3. B
4. 6
5. A
6. C
7. -3
8. B
9. C
10. 40

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