NORTHWEST TERRITORIES PRE-CALCULUS 12 (MPREC12) · UNIT A · 25 QUESTIONS

Transformations and Polynomial Functions — Practice Test

This practice test was made by AI and there may be mistakes. If a question or answer looks wrong, use the Flag a mistake button to let Brett know so he can fix it.

1 **The vertex of the parabola $y = (x - 4)^2 + 3$ is**

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

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2 **If (2, 5) lies on y = f(x), then on y = -f(x) the point is**

- A (2, -5)
- B (-2, 5)
- C (2, 5)
- D (-2, -5)

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3 **If (4, 6) lies on y = f(x), then on y = f(2x) the point is**

- A (8, 6)
- B (2, 6)
- C (4, 12)
- D (2, 3)

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4 **If (1, 4) lies on y = f(x), then on y = 3f(x) the point is**

- A (3, 12)
- B (3, 4)
- C (1, 7)
- D (1, 12)

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5 **If (5, 2) lies on y = f(x), then on y = 2f(x - 3) + 1 it is**

- A (5, 5)
- B (2, 5)
- C (8, 3)
- D (8, 5)

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6 **Shifting $y = x^2$ left 2 and up 5 gives**

- **A** $y = (x + 2)^2 - 5$
- **B** $y = (x - 2)^2 + 5$
- **C** $y = (x + 2)^2 + 5$
- **D** $y = (x - 2)^2 - 5$

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7 **For $y = (x + 2)^2 - 1$, the y-intercept is**

- **A** 3
- **B** -1
- **C** 0
- **D** 4

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8 The degree of $-3x^4 + 2x^2 - 7$ is

- A 3
- B 4
- C 2
- D 7

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9 For $f(x) = -2x^5 + x^2 - 4$, as $x \to -\infty$, $f(x) \to$

- A 0
- B $-\infty$
- C $+\infty$
- D 4

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10 **The zeros of f(x) = (x - 1)(x + 2)(x - 3) are**

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

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11 **When factored completely, $x^3 - 8$ is**

- A $(x - 2)(x^2 - 2x + 4)$
- B $(x - 2)(x^2 + 2x + 4)$
- C $(x + 2)(x^2 + 2x + 4)$
- D $(x - 2)^3$

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12 **The solutions of $x^2 - 5x + 6 = 0$ are**

- A 2 and -3
- B -2 and -3
- C 1 and 6
- D 2 and 3

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13 **The solutions of $x^3 - 4x = 0$ are**

- A 2, -2
- B 0, 4, -4
- C 0, 2, -2
- D 0, 2

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14 **For $P(x) = x^3 - 2x^2 + 3x - 5$, the value of $P(2)$ is**

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15 **When factored completely, $x^2 - 3x + 2$ is**

A $(x + 1)(x + 2)$

B $(x - 1)(x - 2)$

C $(x - 1)(x + 2)$

D $(x + 1)(x - 2)$

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16 **A cubic has x-intercepts at -2, 1, and 2. How many distinct x-intercepts does it have?**

- A 2
- B 3
- C 1
- D 4

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17 **For $f(x) = (x - 2)^2(x + 1)$, at $x = 2$ the graph**

- A touches and turns back
- B crosses straight through
- C has a vertical asymptote
- D has a hole

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18 For $f(x) = 4x^3 - x + 1$, as $x \to +\infty$, $f(x) \to$

A 1

B $-\infty$

C $+\infty$

D 0

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19 Dividing $x^2 + 5x + 6$ by $x + 2$ gives

A $x + 3$

B $x + 2$

C $x + 5$

D $x - 3$

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20 The y-intercept of $f(x) = 2x^3 - x^2 + 4x - 7$ is

ANSWER _____

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21 The point (3, -1) under
$(x, y) \rightarrow (x - 4, y + 2)$ becomes

A (7, 1)

B (-1, 1)

C (-1, -3)

D (7, -3)

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22 If (6, 10) lies on y = f(x), then on $y = \frac{1}{2}f(x)$ the point is

- A (12, 10)
- B (3, 10)
- C (6, 5)
- D (6, 20)

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23 The vertex of y = |x - 1| + 2 is

- A (1, 2)
- B (-1, 2)
- C (1, -2)
- D (-1, -2)

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24 **Reflecting $y = x^2$ in the x-axis gives**

- A $y = -x + 2$
- B $y = (-x)^2$
- C $y = x^2 - 1$
- D $y = -x^2$

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25 **For $y = |x - 1| + 2$, the smallest value of this function is**

- A 0
- B 1
- C 2
- D -1

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ANSWER KEY

1. A
2. A
3. B
4. D
5. D
6. C
7. A
8. B
9. C
10. D
11. B
12. D
13. C
14. 1
15. B
16. B
17. A
18. C
19. A
20. -7
21. B
22. C
23. A
24. D
25. C

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