Test 2 (Unit 3)

Question 1 .

Order the following numbers from least to greatest.

$$6.\bar{2}\ ,\ \frac{31}{5}\ ,\ \sqrt{44}\ ,\ 6.1$$

- **A.** $\frac{31}{5}\ ,\ \sqrt{44}\ ,\ 6.1\ ,\ 6.\bar{2}$
- **B.** $6.1\ ,\ \frac{31}{5}\ ,\ 6.\bar{2}\ ,\ \sqrt{44}$
- **C.** $\frac{31}{5}\ ,\ 6.1\ ,\ 6.\bar{2}\ ,\ \sqrt{44}$
- **D.** $\sqrt{44}\ ,\ \frac{31}{5}\ ,\ 6.1\ ,\ 6.\bar{2}$

Question 2 .

Simplify the following expression.

$$\frac{x^2 + 14x + 48}{x + 6}$$

- **A.** $x^2 + 24x + 54$
- **B.** $x + 8$
- **C.** $x + 6$
- **D.** $x^2 + 20x + 42$

Question 3 .

Simplify the following expression.

$$(3x - 6)(3x + 6)$$

- **A.** $9x^2 - 36x - 36$
- **B.** $9x^2 + 36x - 36$
- **C.** $9x^2 - 36$
- **D.** $9x^2 - 12$

Question 4 .

When factored completely, which is a factor of $3x^3 - 9x^2 - 12x$?

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

Question 5 .

Simplify the expression given below.

$$(20x^3 - 6) - (12x^3 - 35)$$

- **A.** $20x^3 - 11x^2 + 41$
- **B.** $18x^3 - 9x^2 + 29$
- **C.** $8x^3 + 29$
- **D.** $8x^3 + 12x^2 - 29$

Question 6 .

Simplify:

$$\frac{^-2x^3 - 8x^2 - 6x}{^-2x^3 + 10x^2 + 12x};\ x \neq {}^-1,\ 0,\ 6$$

- **A.** $\frac{x + 3}{x - 6}$
- **B.** $x^3 - \frac{4}{5}x^2 - \frac{1}{2}x$
- **C.** $\frac{^-4}{5}x^2 - \frac{1}{2}x$
- **D.** $\frac{x - 3}{x + 6}$

Question 7 .

Simplify the following expression.

$$\frac{2x^7 - 4x^4}{2x^4}$$

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

Question 8 .

Simplify the following expression.

$$\frac{x^2 + 4x - 21}{(x + 7)(x + 4)}$$

- **A.** 1
- **B.** $\frac{x - 3}{x + 4}$
- **C.** $\frac{x - 3}{x + 7}$
- **D.** $\frac{x - 3}{x + 3}$

Question 9 .

Factor the polynomial below.

$x^2 + 7x + 10$

- **A.** $(x + 2)(x - 5)$
- **B.** $(x - 2)(x + 5)$
- **C.** $(x - 2)(x - 5)$
- **D.** $(x + 2)(x + 5)$

Question 10 .

Which binomial is a factor of $x^2 + 6x + 8$?

- **A.** $(x - 2)$
- **B.** $(x + 8)$
- **C.** $(x + 1)$
- **D.** $(x + 4)$

Question 11 .

A polynomial expression is shown below.

$$(4x^4 + 3x^2 - 1) + (mx^3 + 2)(3x^2 + 1)$$

The expression is simplified to $15x^5 + 4x^4 + 5x^3 + 9x^2 + 1$.

What is the value of m?

- **A.** -3
- **B.** 3
- **C.** 5
- **D.** 15

Question 12 .

Simplify the following expression.

$$(2x + 5)^2$$

- **A.** $4x^2 - 20x + 25$
- **B.** $4x^2 + 20x + 25$
- **C.** $4x^2 + 10x + 25$
- **D.** $4x^2 + 25$

Question 13 .

Simplify the following expression.

$$\frac{3x^2 - 75}{x^2 - 10x + 25}$$

- **A.** $\frac{3x - 5}{3x + 15}$
- **B.** $\frac{3x + 15}{x - 5}$
- **C.** $\frac{x - 5}{3x + 15}$
- **D.** $\frac{3x + 15}{3x - 5}$

Question 14 .

Factor the following polynomial completely.

$$6x^3 - 54x^2 + 120x$$

- **A.** $6x(x - 4)(x - 5)$
- **B.** $6(x^3 - 9x^2 + 20x)$
- **C.** $-6(x^3 + 9x + 20)$
- **D.** $6x(x - 4)(x + 5)$

Question 15 .

Whitley has run 17 miles. His slowest running time for a mile was 10 minutes and 14 seconds. His fastest running time for a mile was 7 minutes and 58 seconds. What is a reasonable estimate for how much time Whitley has spent running these 17 miles?

- **A.** 153 minutes
- **B.** 102 minutes
- **C.** 289 minutes
- **D.** 187 minutes

Question 16 .

$65x^3y^4z^4 \quad 25x^3y^4$

What is the greatest common factor (GCF) of the monomials shown above?

- **A.** $325x^3y^4z^4$
- **B.** $325x^6y^8z^4$
- **C.** $5x^3y^4$
- **D.** $5x^3y^4z^4$

Question 17 .

Simplify the expression given below.

$$(7x^2 - 10x - 22) + (5x^3 - 15x^2 - 16x + 15)$$

- **A.** $5x^3 - 22x^2 - 6x - 7$
- **B.** $5x^3 - 8x^2 - 26x - 7$
- **C.** $-5x^3 - 8x^2 - 26x - 37$
- **D.** $5x^3 - 8x^2 - 6x - 37$

Question 18 .

Simplify the following expression.

$$\frac{5x^8 - 40x^{16}}{x^5 - 8x^{13}}$$

- **A.** $10x^3$
- **B.** $5x^3$
- **C.** $-5x^8$
- **D.** $5x^8$

Question 19 .

Solve the following.

$$\sqrt{12} \times 3\sqrt{3} = ?$$

- **A.** $3\sqrt{15}$
- **B.** 5
- **C.** 6
- **D.** 18

Question 20 .

Factor the following polynomial completely.

$$0.3x^2 - 3.3x + 5.4$$

- **A.** $0.3(x - 2)(x + 9)$
- **B.** $0.3(x^2 - 11x + 18)$
- **C.** $0.3(x - 2)(x - 9)$
- **D.** $-0.3(x^2 + 11x + 18)$

Question 21 .

Multiply: $(2x - 5)(4x^2 + 7x - 11)$

- **A.** $8x^3 - 6x^2 - 57x + 55$
- **B.** $8x^3 - 34x^2 - 57x + 55$
- **C.** $8x^2 - 57x + 55$
- **D.** $8x^3 - 6x^2 - 57x - 55$

Question 22 .

Factor the following polynomial completely.

$$-10x^3 - 40x^2 + 320x$$

- **A.** $10x(x + 8)(x - 4)$
- **B.** $-10(x^3 + 4x^2 - 32x)$
- **C.** $-10(x^2 + 8)(x + 4)$
- **D.** $-10x(x + 8)(x - 4)$

Question 23 .

Simplify.

$$\sqrt{200}$$

- **A.** $20\sqrt{10}$
- **B.** $100\sqrt{2}$
- **C.** $10\sqrt{2}$
- **D.** $2\sqrt{10}$

Answers

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