

1. Simplify the expression given below.

$$(10x^3 - 3) - (5x^2 + 3x - 6)$$

- ☐ A. $10x^3 - 5x^2 - 3x + 3$
☐ B. $10x^3 - 4x^2 - 2x + 3$
☐ C. $5x^3 - 3x + 3$
☐ D. $10x^3 + 5x^2 + 3x + 9$

3. Simplify the following expression.

$$(3x - 8)(3x + 8)$$

- ☐ A. $9x^2 - 16$
☐ B. $9x^2 + 48x - 64$
☐ C. $9x^2 - 48x - 64$
☐ D. $9x^2 - 64$

5. Simplify:
- $(8x^2 - 4x - 6)(3x + 6)$

- ☐ A. $24x^3 + 36x^2 - 6x - 36$
☐ B. $24x^3 + 36x^2 - 42x - 36$
☐ C. $24x^3 + 60x^2 - 42x - 36$
☐ D. $24x^3 + 60x^2 + 6x - 36$

7. Factor the following polynomial completely.

$$7x^3 - 70x^2 + 147x$$

- ☐ A. $7(x^3 - 10x^2 + 21x)$
☐ B. $-7(x^3 + 10x + 21)$
☐ C. $7x(x - 3)(x + 7)$
☐ D. $7x(x - 3)(x - 7)$

2. Simplify the following polynomial expression.

$$(8x^2 - 7x + 2) + (3x^2 - 9x - 6)$$

$$\square x^2 + \square x + \square$$

4. Simplify the following expression.

$$(4x + 1)^2$$

- ☐ A. $16x^2 + 4x + 1$
☐ B. $16x^2 + 8x + 1$
☐ C. $16x^2 + 1$
☐ D. $16x^2 - 8x + 1$

6. A polynomial expression is shown below.

$$(8x^5 - 24x^4) - (sx^3 - 7)(2x^2 - 6x + 4)$$

The expression is simplified to $-16x^3 + 14x^2 - 42x + 28$.

What is the value of s ?

- ☐ A. -4 ☐ C. 2
☐ B. 4 ☐ D. -2

8. Factor the following polynomial completely.

$$-0.9x^2 - 5.4x + 6.3$$

- ☐ A. $-0.9(x + 7)(x - 1)$
☐ B. $0.9(x + 7)(x - 1)$
☐ C. $-0.9(x + 7)(x + 1)$
☐ D. $-0.9(x^2 + 6x - 7)$

9. Which binomial is a factor of $x^2 + 2x - 15$?

- ☐ A. $(x + 15)$
☐ B. $(x - 5)$
☐ C. $(x - 3)$
☐ D. $(x - 1)$

11. Which binomial is a factor of $x^2 - 64$?

- ☐ A. $(x - 32)$
☐ B. $(x - 16)$
☐ C. $(x - 8)$
☐ D. $(x + 4)$

13. Simplify the following expression.

$$\frac{2x^3 + 14x^2 - 8x}{2x}$$

- ☐ A. $15x^2 + 4x$
☐ B. $x^2 + 12x - 6$
☐ C. $2x^3 + 14x^2 - 4$
☐ D. $x^2 + 7x - 4$

15. Simplify the following expression.

$$\frac{x - 5}{-10x^2 + 60x - 50}$$

- ☐ A. $-10x + 10$ ☐ C. $\frac{1}{-10x - 10}$
☐ B. $-10x - 10$ ☐ D. $\frac{1}{-10x + 10}$

10. Factor the following polynomial.

$$10x^2 + 25x$$

- ☐ A. $5x(2x + 5)$ ☐ C. $5(2x + 5)$
☐ B. $5x^2(2x + 5)$ ☐ D. $5x(2x + 25)$

12. Simplify the following expression.

$$\frac{2x^2 - 18}{x + 3}$$

- ☐ A. $2x + 3$ ☐ C. $2x + 18$
☐ B. $2x - 6$ ☐ D. $6x - 12$

14. Simplify the following expression.

$$\frac{x^2 + 7x - 8}{(x + 8)(x + 2)}$$

- ☐ A. $\frac{x - 1}{x + 2}$ ☐ C. $\frac{x + 8}{x + 2}$
☐ B. 1 ☐ D. $\frac{x - 1}{x + 8}$

16. Simplify the following expression.

$$\frac{4x^2 - 64}{x^2 + 6x + 8}$$

- ☐ A. $\frac{4x - 64}{x - 2}$ ☐ C. $\frac{16x - 16}{x + 2}$
☐ B. $\frac{4x + 16}{x - 2}$ ☐ D. $\frac{4x - 16}{x + 2}$

17. Simplify the following expression.

$$\frac{4x^8 - 28x^{15}}{x^2 - 7x^9}$$

- ☐ A. $4x^6$
- ☐ B. $-4x^7$
- ☐ C. $4x^8$
- ☐ D. $8x^6$

18. Simplify the following expression.

$$\frac{3x^2 + 21x + 36}{3x^2 + 6x - 24}$$

- | | |
|---|--|
| ☐ A. $\frac{x-3}{3x-1}$ | ☐ C. $\frac{x+3}{x-2}$ |
| ☐ B. $\frac{3x+9}{x+2}$ | ☐ D. $\frac{x-3}{x+6}$ |

19. A band just recorded a new album with 10 tracks. The shortest song on the album is 1 minute and 17 seconds. The longest song on the album is 5 minutes and 56 seconds. What is a reasonable estimate for the total time of the album?

- ☐ A. 4 minutes
- ☐ B. 70 minutes
- ☐ C. 9 minutes
- ☐ D. 35 minutes