

Name \_\_\_\_\_

## Factoring

Factor each expression.

1.  $x^2 + 15x + 36$

2.  $x^2 + 6x - 40$

3.  $x^2 - 15x + 56$

4.  $x^2 - 3x - 40$

5.  $x^2 + 9x + 14$

6.  $x^2 - 2x - 24$

7.  $x^2 - 17x + 30$

8.  $x^2 + 16x + 64$

9.  $3x^2 + 24x - 60$

10.  $5x^3 + 25x^2 + 20x$

11.  $4x^2 - 60x + 176$

12.  $2x^2 + 22x + 48$

Write the letter of the correct answer.

13. \_\_\_\_\_ Factor:  $10x^3y + 100x^2y - 240xy$   
A.  $10xy(x + 12)(x - 2)$   
B.  $10y(x + 12)(x - 2)$   
C.  $10xy(x + 120)(x - 2)$   
D.  $10xy(x - 12)(x + 2)$
14. \_\_\_\_\_ Factor:  $x^2 - 16$   
A.  $(x + 8)(x - 8)$   
B.  $(x + 8)(x - 2)$   
C.  $(x - 4)^2$   
D.  $(x + 4)(x - 4)$
15. \_\_\_\_\_ Factor:  $4a^3 + 4a^2 - 168a$   
A.  $4(a - 6)(a + 7)$   
B.  $4a(a - 6)(a + 7)$   
C.  $4(a + 6)(a - 7)$   
D.  $4a(a + 6)(a - 7)$
16. \_\_\_\_\_ When  $2x^3 + 12x^2 - 54x$  is factored completely, which is one of its factors?  
A.  $(x - 6)$   
B.  $(x - 3)$   
C.  $(x - 27)$   
D.  $(x + 2)$
17. \_\_\_\_\_ When  $x^2 - 12x - 28$  is factored completely, which is one of its factors?  
A.  $(x + 4)$   
B.  $(x - 7)$   
C.  $(x - 14)$   
D.  $(x - 28)$
18. \_\_\_\_\_ Find the sum:  $(2x^2 - 6x + 4) + (3x^4 + 2x^2 - 7)$   
A.  $3x^4 + 4x^2 - 6x - 3$   
B.  $3x^4 + 4x^2 - 6x + 11$   
C.  $5x^6 - 4x^3 - 3$   
D.  $6x^6 - 18x^5 + 16x^4 - 12x^3 - 6x^2 + 42x - 28$
19. \_\_\_\_\_ Find the product:  $(x + 9)(x - 9)$   
A.  $x^2 - 18x - 81$   
B.  $x^2 - 81$   
C.  $x^2 - 81x - 18$   
D.  $x^2 - 18$
20. \_\_\_\_\_ True/False.  $(x + 2)^2 = x^2 + 4$

## Factoring Answers

Factor each expression.

1.  $x^2 + 15x + 36$        $(x + 12)(x + 3)$

2.  $x^2 + 6x - 40$        $(x + 10)(x - 4)$

3.  $x^2 - 15x + 56$        $(x - 8)(x - 7)$

4.  $x^2 - 3x - 40$        $(x - 8)(x + 5)$

5.  $x^2 + 9x + 14$        $(x + 7)(x + 2)$

6.  $x^2 - 2x - 24$        $(x - 12)(x + 10)$

7.  $x^2 - 17x + 30$        $(x - 15)(x - 2)$

8.  $x^2 + 16x + 64$        $(x + 8)^2$

9.  $3x^2 + 24x - 60$        $3(x + 10)(x - 2)$

10.  $5x^3 + 25x^2 + 20x$        $5x(x + 4)(x + 1)$

11.  $4x^2 - 60x + 176$        $4(x - 11)(x - 4)$

12.  $2x^2 + 22x + 48$        $2(x + 8)(x + 3)$

Write the letter of the correct answer.

13. \_\_\_\_\_ Factor:  $10x^3y + 100x^2y - 240xy$

- A.  $10xy(x + 12)(x - 2)$
- B.  $10y(x + 12)(x - 2)$
- C.  $10xy(x + 120)(x - 2)$
- D.  $10xy(x - 12)(x + 2)$

14. \_\_\_\_\_ Factor:  $x^2 - 16$

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

15. \_\_\_\_\_ Factor:  $4a^3 + 4a^2 - 168a$

- A.  $4(a - 6)(a + 7)$
- B.  $4a(a - 6)(a + 7)$
- C.  $4(a + 6)(a - 7)$
- D.  $4a(a + 6)(a - 7)$

16. \_\_\_\_\_ When  $2x^3 + 12x^2 - 54x$  is factored completely, which is one of its factors?

- A.  $(x - 6)$
- B.  $(x - 3)$
- C.  $(x - 27)$
- D.  $(x + 2)$

17. \_\_\_\_\_ When  $x^2 - 12x - 28$  is factored completely, which is one of its factors?

- A.  $(x + 4)$
- B.  $(x - 7)$
- C.  $(x - 14)$
- D.  $(x - 28)$

18. \_\_\_\_\_ Find the sum:  $(2x^2 - 6x + 4) + (3x^4 + 2x^2 - 7)$

- A.  $3x^4 + 4x^2 - 6x - 3$
- B.  $3x^4 + 4x^2 - 6x + 11$
- C.  $5x^6 - 4x^3 - 3$
- D.  $6x^6 - 18x^5 + 16x^4 - 12x^3 - 6x^2 + 42x - 28$

19. \_\_\_\_\_ Find the product:  $(x + 9)(x - 9)$

- A.  $x^2 - 18x - 81$
- B.  $x^2 - 81$
- C.  $x^2 - 81x - 18$
- D.  $x^2 - 18$

20. \_\_\_\_\_ **False** \_\_\_\_\_ True/False.  $(x + 2)^2 = x^2 + 4$