

**TB(2A) Ch. 2 Identities & Factorization**  
**Multiple Choice Questions**

**1. [11-12 F.2 S.Test 1 #1]**

Which of the following is/are identities?

- I.  $x + 2 = 2x$
- II.  $2x - 1 = 2(x + 1) - 3$
- III.  $y^2 - z^2 = (y - z)^2$

- A. I only
- B. II only
- C. I and II only
- D. II and III only

**2. [11-12 F.2 S.Test 1 #2]**

Factorize  $4m^2 - 25n^2$ .

- A.  $(2m - 5n)^2$
- B.  $(4m - 25n)^2$
- C.  $(2m + 5n)(2m - 5n)$
- D.  $(4m + 25n)(4m - 25n)$

**3. [11-12 F.2 S.Test 1 #5]**

Which of the following is NOT a factor of  $a^3b - ab^3$ ?

- A.  $ab$
- B.  $a + b$
- C.  $a - b$
- D.  $(a - b)^2$

**4. [11-12 F.2 S.Test 1 #6]**

Which of the following(s) can be factorized?

- I.  $x^2 - 1$
- II.  $x^2 + 9$
- III.  $x^2 - xy + y^2$
- IV.  $1 - x^2 - y^2 + x^2y^2$

- A. I only
- B. I and IV only
- C. II and III only
- D. All of the above

**5. [11 - 12 F.2 Mid-year Exam #3]**Expand  $\left(2a - \frac{b}{2}\right)^2$ 

A.  $2a^2 + \frac{b^2}{4}$

B.  $4a^2 - \frac{b^2}{4}$

C.  $4a^2 + 2ab + \frac{b^2}{4}$

D.  $4a^2 - 2ab + \frac{b^2}{4}$

**6. [11 - 12 F.2 Mid-year Exam #10]** $25 - (m^2 - 2mn + n^2) =$ 

A.  $(5 - m + n)(5 + m - n)$

B.  $(5 - m - n)(5 - m + n)$

C.  $(5 - m - n)(5 + m - n)$

D.  $(5 - m - n)(5 + m + n)$

**7. [11 - 12 F.2 Mid-year Exam #15]**Expand  $\left[(a-1)^2 - (a+1)^2\right]^2$ .

A. 0

B.  $-4a$

C.  $16a^2$

D.  $16a^2 - 16a + 4$

**8. [11 - 12 F.2 Mid-year Exam #16]**Factorize  $27(x-y)^3 - 9(y-x)^2$ .

A.  $3(x-y)^2(x-y-1)$

B.  $3(x-y)^2(x-y+1)$

C.  $9(x-y)^2(3x-3y-1)$

D.  $9(x-y)^2(3x-3y+1)$

**9. [11 - 12 F.2 Final Exam #15]**

If  $A$  and  $B$  are constants such that  $Ax^2 - B \equiv -(x-2)(3x-4) + 10(1-x)$ , then  $B =$

- A.  $-18$ .
- B.  $-2$ .
- C.  $2$ .
- D.  $18$ .

**10. [12-13 S.Test 1 #5]**

Expand  $\left(\frac{3a}{2} - \frac{2}{3a}\right)^2$ .

- A.  $\frac{3a^2}{2} - \frac{2}{3a^2}$
- B.  $\frac{9a^2}{4} - \frac{4}{9a^2}$
- C.  $\frac{3a^2}{2} + \frac{2}{3a^2} - 2$
- D.  $\frac{9a^2}{4} + \frac{4}{9a^2} - 2$

**11. [12-13 S.Test 1 #6]**

Which of the following is NOT a factor of  $2(a-b)^2 + 4(a-b)$ ?

- A.  $2$
- B.  $a-b$
- C.  $a+b$
- D.  $a-b+2$

**12. [12-13 Mid-year Exam #2]**

Factorize  $ax - by - bx + ay$ .

- A.  $(a-b)(x-y)$
- B.  $(a-b)(x+y)$
- C.  $(b-a)(x-y)$
- D.  $(b-a)(x+y)$

**13. [12-13 Mid-year Exam #11]**

$$(-3p - 9q)^2 =$$

- A.  $3(p + 3q)^2$ .
- B.  $9(p + 3q)^2$ .
- C.  $-3(p + 3q)^2$ .
- D.  $-9(p - 3q)^2$ .

**14. [12-13 Mid-year Exam #12]**

Factorize  $x^4 - 81$ .

- A.  $(x + 3)^2(x - 3)^2$
- B.  $(x + 3)^3(x - 3)$
- C.  $(x + 9)^2(x + 9)(x - 9)$
- D.  $(x^2 + 9)(x + 3)(x - 3)$

**15. [12-13 Mid-year Exam #13]**

If  $x + \frac{1}{x} = 3$ , what is the value of  $x^2 + \frac{1}{x^2}$ ?

- A. 5
- B. 7
- C. 9
- D. 11

**16. [12-13 Mid-year Exam #14]**

$$(2a^2 + 1 - 2a)(2a^2 + 1 + 2a) =$$

- A.  $4a^4 + 1$ .
- B.  $4a^4 + a^2 + 1$ .
- C.  $4a^4 - 2a^2 + 1$ .
- D.  $4a^4 + 2a^2 + 1$ .

**17. [12-13 S.2 Final Exam #16]**

If  $y(Py + 10) - y(2 + y) \equiv 2y(y + 4)$ , where  $P$  is a constant, then the value of  $P$  is

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

**18. [13-14 F.2 S.Test 1 #2]**

Factorize  $10m - 8n + 5m^2 - 4mn$ .

- A.  $(5m - 4n)(2 + m)$
- B.  $(5m - 4n)(2 - m)$
- C.  $(4n - 5m)(2 - m)$
- D.  $(5m + 4n)(2 + m)$

**19. [13-14 F.2 S.Test 1 #6]**Factorize  $2(y-1)^2 - 6(1-y)$ .

- A.  $2(y-1)(y+2)$
- B.  $2(y-1)(y+4)$
- C.  $2(y-1)(y-7)$
- D.  $2(1-y)(y-4)$

**20. [13-14 F.2 S.Test 1 #7]**Which of the following is/are a factor/factors of  $5x^4 - 80$ ?

- I.  $x-2$
- II.  $x^2+4$
- III.  $5x+10$

- A. I only
- B. I and II only
- C. II and III only
- D. I, II and III

**21. [13-14 F.2 S.Test 1 #8]**If  $a+b=8$  and  $a^2+b^2=16$ , then  $ab=$ 

- A. 12.
- B. 15.
- C. 24.
- D. 48.

**22. [13-14 Mid-year Exam #8]** $(-2x+4y)^2=$ 

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

**23. [13-14 Mid-year Exam #13]**Factorize  $ax^2 - by + bx - ay^2$ .

- A.  $(x-y)(ax+ay+b)$
- B.  $(x-y)(ax+ay-b)$
- C.  $(x+y)(ax+ay-b)$
- D. Cannot be factorized

**24. [13-14 Mid-year Exam #15]**Factorize  $(x-3)^3 - 4x + 12$ .

- A.  $(x-3)^2(x-7)$
- B.  $(x-3)(x^2 + 3x + 5)$
- C.  $(x-3)(x^2 - 6x + 5)$
- D.  $(x-1)(x-3)(x-5)$

**25. [13-14 Final Exam #4]**Which of the following is a common factor of  $3m^2 - 11mn + 6n^2$  and  $9m^2 - 4n^2$ ?

- A.  $3m^2$
- B.  $m - 3n$
- C.  $3m - 2n$
- D.  $3m + 2n$

**26. [14-15 Mid-year Exam]**

Which of the following is an identity?

- A.  $a^2 + b^2 = (a+b)^2$
- B.  $(a-b)^2 = -(b-a)^2$
- C.  $(3a+6b)^2 = 3(a+2b)^2$
- D.  $(a+2b)^2 - (a-2b)^2 = 8ab$

**27. [14-15 Mid-year Exam]**Expand  $(p+2q)^2 - 4p^2$ .

- A.  $-3p^2 + 4pq + 4q^2$
- B.  $-15p^2 + 4pq + 4q^2$
- C.  $(3p+2q)(-p+2q)$
- D.  $(5p+2q)(-3p+2q)$

**28. [14-15 Mid-year Exam]**Factorize  $9a^2 + 6ab + b^2 - (a-b)^2$ .

- A.  $8a^2$
- B.  $4a(a+b)$
- C.  $8a(a+b)$
- D.  $(3a+b)(a-b)$

**29. [14-15 Mid-year Exam]**Factorize  $a^4 - 13a^2 + 36$ .

- A.  $(a-2)^2(a-3)^2$
- B.  $(a-2)^2(a+3)(a-3)$
- C.  $(a+2)^2(a-3)^2$
- D.  $(a+2)(a-2)(a+3)(a-3)$

**30. [14-15 Mid-year Exam]**

Factorize  $\frac{3x^2}{16} - 12y^2 + \frac{9x}{4} - 18y$ .

- A.  $-\frac{3xy}{2} \left( \frac{x}{4} + 3 \right) (2y + 3)$   
B.  $-6xy(x + 12)(2y + 3)$   
C.  $3(x - 2y)(x + 2y + 6)$   
D.  $\frac{3}{16}(x - 8y)(x + 8y + 12)$

**31. [14-15 S.6 Mock Exam #2]**

If  $a$ ,  $b$  and  $c$  are non-zero constants such that  $(ax + b)(5x + 1) \equiv 10x^2 + cx - 1$ , then  $c =$

- A.  $-7$ .  
B.  $-3$ .  
C.  $3$ .  
D.  $7$ .

**32. [14-15 Final Exam #2]**

$$(a - b)^2 + (b - a)^2 =$$

- A.  $0$ .            B.  $(a - b)^2$ .  
C.  $2(b - a)^2$ .    D.  $(2a - b)^2$ .

**33. [15-16 S2 Mid-year Exam #15]**

Which of the following is correct?

I.  $\frac{y}{x} - 1 \equiv -\frac{x - y}{x}$

II.  $\frac{2x + y}{2x} \equiv 1 + y$

III.  $\frac{x + y}{x - y} \equiv \frac{x}{x - y} - \frac{y}{y - x}$

- A. I and II only  
B. I and III only  
C. II and III only  
D. I, II and III

**34. [15-16 S2 Mid-year Exam #18]**

If  $ab = 5$  and  $a - b = 4$ , find the value of  $a^2 + b^2$ .

- A. 6
- B. 16
- C. 26
- D. Cannot be determined