F.2 Mathematics
MC Exercise
2A3 Identities and Factorization

1. If $-x^2+2 \equiv Ax^2+Bx+C$, find the constants A, B and C.

A. $A=1,\ B=0,\ C=2$

B. $A=1,\ B=2,\ C=0$

C. $A=-1,\ B=0,\ C=2$

D. $A=-1,\ B=2,\ C=0$

2. If $(6x-1)(4x^2+3) \equiv Px^3+Qx^2+Rx-S$, find the constants P, Q, R and S.

A. $P=24,\ Q=-4,\ R=18,\ S=3$

B. $P=24,\ Q=-4,\ R=18,\ S=-3$

C. $P=24,\ Q=4,\ R=-18,\ S=3$

D. $P=-24,\ Q=4,\ R=18,\ S=2$

3. Which of the following is an identity?

A. $(2x+1)(x-3)=2x^2-5x+3$

B. $(2x+1)(x+3)=2x^2-7x+3$

C. $(2x-1)(x-3)=2x^2+7x-3$

D. $(2x-1)(x+3)=2x^2+5x-3$

4. Which of the following is identical to $4(6+x)-5(1+x)$?

A. $-x+19$

B. $-x+29$

C. $9x+19$

D. $9x+29$

5. Expand $(5+a)(5-a)$.

A. a^2-25

B. $25-a^2$

C. a^2+25

D. $-25-a^2$

6. Expand $7(a+2b)(a-2b)$.

A. $-7a^2-28b^2$

B. $-7a^2+28b^2$

C. $7a^2-28b^2$

D. $7a^2+28b^2$

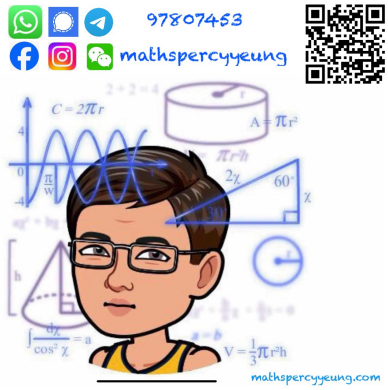
7. Expand $-(xy-1)(xy+1)$.

A. $1-x^2y^2$

B. $1-xy^2$

C. x^2y^2-1

D. xy^2-1



8. Expand $(\frac{2}{5}-x)(-\frac{2}{5}-x)$.

A. $\frac{4}{25}-x^2$

B. $x^2-\frac{4}{25}$

C. $\frac{4}{5}-x^2$

D. $x^2-\frac{4}{5}$

9. Expand $(a+3b)^2$.

A. a^2+3b^2

B. a^2+9b^2

C. $a^2+6ab+3b^2$

D. $a^2+6ab+9b^2$

10. Expand $-(3r-s)^2$.

A. $9r^2-6rs+s^2$

B. $-9r^2-6rs+s^2$

C. $-9r^2+6rs-s^2$

D. $-3r^2+6rs-s^2$

11. Expand $(x+7)^2+(x-7)^2$.

A. $28x$

B. $4x^2$

C. $2x^2+49$

D. $2x^2+98$

12. Which of the following is a common factor of $3x^2y$, $9x^4y$ and $15x$?

A. $3x$

B. $3xy$

C. x^2y

D. x^2

13. Factorize $8x^4y^3+18x^2y$.

A. $2x^2y(4xy^2+9)$

B. $2x^2y(4x^2y^2+9)$

C. $2xy(4xy^2+9)$

D. $2xy(4x^3y^2+9x)$

14. Factorize $a(r-s)b+3(r-s)c$.

A. $(r+s)(ab+3c)$

B. $(r+s)(ab-3c)$

C. $(r-s)(ab+3c)$

D. $(r-s)(ab-3c)$

15. Factorize $3pm-8q-qm+24p$.

A. $(3p-q)(m+8)$

B. $(3p+q)(m+8)$

C. $(3p-q)(m-8)$

D. $(3p+q)(m-8)$

16. Factorize $2x^2-9x+4$.

A. $(2x-1)(x-4)$

B. $(2x-1)(x+4)$

C. $(2x+1)(x-4)$

D. $(2x+1)(x+4)$

17. Which of the following cannot be factorized?

A. $ab-3bd-ac+3cd$

B. $ab-3bd+ac-3cd$

C. $-ab-3bd-ac-3cd$

D. $-ab+3bd-ac-3cd$

18. Which of the following is/are not factor(s) of $12x^2+40x+12$?

I. 8

II. $x+3$

III. $3x-1$

A. I only

B. II only

C. I and III only

D. I, II and III

19. Factorize $(-x+y)^2-x^2$.

A. y^2

B. $y-2x$

C. $y(y-2x)$

D. $-x(y-2x)$

20. Factorize $y^4 - 625$.

A. $(y^2 + 25)(y + 5)(y - 5)$

B. $(y^2 + 25)(y^2 + 5)(y - 5)$

C. $(y + 25)(y^2 + 5)(y - 5)$

D. $(y + 25)(y + 5)(y - 5)$

21. Which of the following is/are factor(s) of $n^2 + 4n + 4m - m^2$?

I. $n - m + 4$

II. $n + m + 4$

III. $n - m$

A. I only

B. II only

C. I and II only

D. II and III only

22. Factorize $36p^2 - 24p + 4$.

A. $4(3p + 1)^2$

B. $4(3p - 1)^2$

C. $4(9p + 1)^2$

D. $4(9p - 1)^2$

23. Factorize $9h^3 + 16h - 24h^2$.

A. $h(3h - 4)^2$

B. $h(3h + 4)^2$

C. $3h(3h - 4)^2$

D. $3h(3h + 4)^2$

24. Factorize $r^2 + 100s^2 - 100t^2 + 20rs$.

A. $(r + 10s - t)^2$

B. $(r + 10s + t)(r + 10s - t)$

C. $(r - 10s + 10t)(r - 10s - 10t)$

D. $(r + 10s + 10t)(r + 10s - 10t)$

25. Which of the following is/are factor(s) of $1 + rs(rs + 2)$?

I. $1 + rs$

II. $2 + rs$

III. $1 - rs$

A. I only

B. II only

C. I and II only

D. II and III only