

2025-2026 学年七年级数学上学期第一次月考卷

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一、选择题：(本大题共 6 题，每题 4 分，共 24 分.下列各题四个选项中，有且只有一个选项是正确的，选择正确项的代号并填涂在答题卡的相应位置上.)

1	2	3	4	5	6
C	D	D	B	B	B

二、填空题：(本大题共 12 题，每题 4 分，共 48 分.)

7. 4

8. $-12x^3$

9. $-\frac{5}{7}$

10. $2x^2 - 2x + 3$

11. 8

12. $-4b^3 + ab^2 - 2a^2b + 3a^3$

13. $4x^2 - 3x + 3$

14. 4

15. 36

16. -14

17. -1

18. 7

三、解答题：(本大题共 10 题，共 78 分.解答应写出文字说明，证明过程或演算步骤.)

19. (1) 解: $2a^2 \cdot a^4 + (a^3)^2 - (3a^3)^2$

$$= 2a^6 + a^6 - 9a^6$$

$$= -6a^6;$$

(2) 解: $(-x^3)^2 + x^2(-2x^2)^2$

$$= x^6 + x^2 \times 4x^4$$

$$= x^6 + 4x^6$$

$$= 5x^6.$$

20. (1) 解: $(x+y-z)+(x-y+z)-(x-y-z)$

$$= x+y-z+x-y+z-x+y+z$$

$$= x+y+z;$$

(2) 解: $(a^2+2ab+b^2)-(a^2-2ab+b^2)$

$$= a^2+2ab+b^2-a^2+2ab-b^2$$

$$= 4ab;$$

(3) 解: $3(2x^2-y^2)-2(3y^2-2x^2)$

$$= 6x^2-3y^2-6y^2+4x^2$$

$$= 10x^2-9y^2.$$

21. (1) 解: $3b^2 \cdot 5a \cdot (-2a^3)^2$

$$= 15ab^2 \cdot 4a^6$$

$$= 60a^7b^2;$$

(2) 解: $-2x^2(x^4-3x^3-2)$

$$= -2x^6+6x^5+4x^2;$$

(3) $(2x-y+1)(3+5x)$

$$= 6x+10x^2-3y-5xy+3+5x$$

$$= 10x^2+11x-5xy-3y+3;$$

22. 解: 原式 $= 3x^2-3x+2x^2+3x-2$

$$= 5x^2-2,$$

当 $x=1$ 时, 原式 $= 3$.

23. (1) 解: $\because -5x^2y^{m+1}+xy^2-3x^3-6$ 是六次四项式,

$$\therefore 2+m+1=6,$$

解得 $m=3$,

$\because 3x^{2n}y^{5-m}$ 的次数也是六次,

$$\therefore 2n+5-m=6,$$

$$\therefore n=2,$$

$$\therefore m=3, \quad n=2;$$

$$(2) \text{ 解: 该整式为 } -5x^2y^4 + xy^2 - 3x^3 - 6,$$

$$\text{整式的各项为: } -5x^2y^4, \quad xy^2, \quad -3x^3, \quad -6,$$

$$\text{各项的系数和为: } (-5)+1+(-3)+(-6)=-13.$$

$$24. \text{ 解: } \begin{vmatrix} -2ab & a^2b \\ -3ab^2 & (-ab) \end{vmatrix} = -2ab \cdot (-ab) - a^2b \cdot (-3ab^2) = 2a^2b^2 + 3a^3b^3.$$

$$25. (1) \text{ 解: } 2(A+B) - 3(A-B)$$

$$= 2A + 2B - 3A + 3B$$

$$= -A + 5B$$

$$= -(3x-5y) + 5(-x+8y-6)$$

$$= -3x + 5y - 5x + 40y - 30$$

$$= -8x + 45y - 30;$$

$$(2) \text{ 解: } 3C + D = 3\left(x^2 - \frac{m}{3}x\right) + (nx^2 + x - 3)$$

$$= 3x^2 - mx + nx^2 + x - 3$$

$$= (3+n)x^2 + (1-m)x - 3$$

$$\text{由题可知: } 3+n=0, \quad 1-m=0,$$

$$\text{解得 } n=-3, \quad m=1;$$

$$\text{所以 } m^2 + n^2 = (-3)^2 + 1^2 = 10.$$

$$26. (1) \text{ 解: } S_1 = m(m+3) = m^2 + 3m, \quad S_2 = (m+1)(m+2) = m^2 + 3m + 2$$

$$\text{故答案为: } m^2 + 3m, \quad m^2 + 3m + 2.$$

$$(2) \text{ 解: } \because S_2 - S_1 = m^2 + 3m + 2 - m^2 - 3m = 2 > 0,$$

$$\therefore S_2 > S_1,$$

$$\text{故答案是: } <.$$

$$(3) \text{ 解: } \textcircled{1} \text{ 周长之和: } (m+m+3) \times 2 + (m+1+m+2) \times 2 = 8m + 12,$$

$$\textcircled{2} \text{ 正方形的边长为: } (8m+12) \div 4 = 2m+3,$$

$$\text{当 } m=1 \text{ 时,}$$

$$S_3 - S_2 = (2m+3)^2 - (m^2 + 3m + 2) = 25 - (1+3+2) = 19.$$

$$27. (1) \text{ 解: } \because 2^{44} = (2^4)^{11} = 16^{11}, \quad 4^{22} = (4^2)^{11} = 16^{11},$$

$$\therefore 2^{44} = 4^{22};$$

$$(2) \text{ 解: } \because 7^{24} = (7^2)^{12} = 49^{12}, \quad 4^{36} = (4^3)^{12} = 64^{12}, \quad 3^{48} = (3^4)^{12} = 81^{12}, \quad 2^{60} = (2^5)^{12} = 32^{12},$$

$$\text{又} \because 81 > 64 > 49 > 32,$$

$$\therefore 81^{12} > 64^{12} > 49^{12} > 32^{12},$$

$$\therefore 3^{48} > 4^{36} > 7^{24} > 2^{60};$$

$$(3) \text{ 解: } \because 3^{12} \times 5^{10} = (3 \times 5)^{10} \times 3^2, \quad 3^{10} \times 5^{12} = (3 \times 5)^{10} \times 5^2,$$

$$\text{又} \because 5^2 > 3^2,$$

$$\therefore 3^{10} \times 5^{12} > 3^{12} \times 5^{10}.$$

28. (1) 解: 由题意,

$$A \times C - B \times D$$

$$= (x+1)(x+8) - (x+4)(x+5)$$

$$= x^2 + 8x + x + 8 - (x^2 + 5x + 4x + 20)$$

$$= x^2 + 8x + x + 8 - x^2 - 5x - 4x - 20$$

$$= -12,$$

结果是常数,

$\therefore A \times C - B \times D$ 这种组合为消元组合, 其消元余量为 -12 .

(2) 解: 分三种情况:

若组合 $A \times B - C \times D$ 是消元组合,

$$\because A \times B - C \times D$$

$$= (x+1)(x-2) - (x+5)(x+p)$$

$$= x^2 - 2x + x - 2 - (x^2 + px + 5x + 5p)$$

$$= x^2 - 2x + x - 2 - x^2 - px - 5x - 5p$$

$$= (-6-p)x - 2 - 5p,$$

$$\therefore -6-p=0, \text{ 解得 } p=-6;$$

若组合 $A \times C - B \times D$ 是消元组合,

$$\begin{aligned} & \because A \times C - B \times D \\ &= (x+1)(x+5) - (x-2)(x+p) \\ &= x^2 + 5x + x + 5 - (x^2 + px - 2x - 2p) \\ &= x^2 + 5x + x + 5 - x^2 - px + 2x + 2p \\ &= (8-p)x + 5 + 2p, \end{aligned}$$

$$\therefore 8-p=0, \text{ 解得 } p=8;$$

若组合 $A \times D - B \times C$ 是消元组合,

$$\begin{aligned} & \because A \times D - B \times C \\ &= (x+1)(x+p) - (x-2)(x+5) \\ &= x^2 + px + x + p - (x^2 + 5x - 2x - 10) \\ &= x^2 + px + x + p - x^2 - 5x + 2x + 10 \\ &= (p-2)x + p + 10, \end{aligned}$$

$$\therefore p-2=0, \text{ 解得 } p=2;$$

综上, p 的值为 -6 或 8 或 2 ;

(3) 解: 分三种情况:

$$\begin{aligned} & \textcircled{1} A \times B - C \times D \\ &= (2x+1)(x+4) - (2x+a)(x+b) \\ &= 2x^2 + 8x + x + 4 - (2x^2 + 2bx + ax + ab) \\ &= 2x^2 + 8x + x + 4 - 2x^2 - 2bx - ax - ab \\ &= (9-2b-a)x + 4 - ab, \end{aligned}$$

若组合 $A \times B - C \times D$ 是消元组合,

$$\text{则 } 9-2b-a=0, \text{ 解得 } a=9-2b;$$

若组合 $A \times C - B \times D$ 是消元组合,

$$\begin{aligned} & \textcircled{2} A \times C - B \times D \\ &= (2x+1)(2x+a) - (x+4)(x+b) \end{aligned}$$

$$\begin{aligned}&= 4x^2 + 2ax + 2x + a - (x^2 + bx + 4x + 4b) \\&= 4x^2 + 2ax + 2x + a - x^2 - bx - 4x - 4b \\&= 3x^2 + (2a - b - 2)x + a - 4b, \text{ 不可能为常数,}\end{aligned}$$

∴ 组合 $A \times C - B \times D$ 不是消元组合;

$$\textcircled{3} A \times D - B \times C$$

$$\begin{aligned}&= (2x+1)(x+b) - (x+4)(2x+a) \\&= 2x^2 + 2bx + x + b - (2x^2 + ax + 8x + 4a) \\&= 2x^2 + 2bx + x + b - 2x^2 - ax - 8x - 4a \\&= (2b - a - 7)x + b - 4a,\end{aligned}$$

若组合 $A \times D - B \times C$ 是消元组合,

则 $2b - a - 7 = 0$, 解得 $a = 2b - 7$;

综上, a 与 b 的关系式为 $a = 9 - 2b$ 或 $a = 2b - 7$.