

参考答案

一、选择题(本大题共有 10 小题, 每小题 2 分, 共 20 分)

1~5 DCBCC 6~10 ADBAD

二、填空题(本大题共 8 小题, 每小题 2 分, 共 16 分)

11. 1 12. $y(2x-3)(2x+3)$ 13. 3 14. 16

15. 90 16. 11 17. 58 18. $\frac{21}{8}$

三、解答题(本大题共 9 小题, 共 64 分)

19. 计算:

$$(1) a^3 \cdot a^5 + (a^2)^4 + (-3a^4)^2$$

$$= a^8 + a^8 + 9a^8$$

$$= 11a^8; \quad \dots\dots\dots 3\text{分}$$

$$(2) y(x+2y) - (x-y)^2$$

$$= xy + 2y^2 - (x^2 - 2xy + y^2)$$

$$= xy + 2y^2 - x^2 + 2xy - y^2$$

$$= -x^2 + 3xy + y^2; \quad \dots\dots\dots 3\text{分}$$

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

$$= (x+2)^2 - y^2$$

$$= x^2 + 4x + 4 - y^2. \quad \dots\dots\dots 3\text{分}$$

20. 因式分解:

$$(1) 3a^2b - 6ab^2 + 9ab$$

$$= 3ab(a - 2b + 3); \quad \dots\dots\dots 3\text{分}$$

$$(2) (a^2 + 1)^2 - 4a^2$$

$$= (a^2 + 1 - 2a)(a^2 + 1 + 2a) \dots\dots\dots 2\text{分}$$

$$= (a-1)^2(a+1)^2. \quad \dots\dots\dots 3\text{分}$$

$$21. \text{解: 原式} = m^2 - 4n^2 - (m^2 - 4mn + 4n^2) + 4n^2$$

$$= m^2 - 4n^2 - m^2 + 4mn - 4n^2 + 4n^2$$

$$= -4n^2 + 4mn \quad \dots\dots\dots 3\text{分}$$

将 $m = -2$, $n = \frac{1}{2}$ 代入上式,

$$\text{原式} = -4 \times \left(\frac{1}{2}\right)^2 + 4 \times (-2) \times \frac{1}{2}$$

$$= -1 - 4$$

$$= -5. \quad \dots\dots\dots 5\text{分}$$

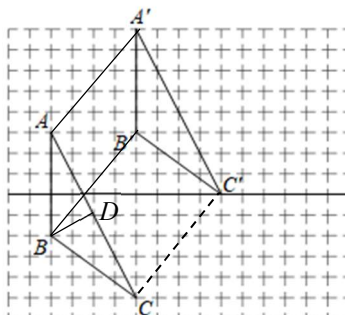
22. 作图如下:

(1) 请画出平移后的 $\triangle A'B'C'$; 2 分

(2) 若连结 AA' , BB' , 则这两条线段之间的关系是 $AA' \parallel BB'$ 且 $AA' = BB'$ 3 分

(3) 利用网格画出 $\triangle ABC$ 中 AC 边上的中线 BD ; 4 分

(4) 在平移过程中, 线段 AB 扫过的面积为 20. 6 分



23. (1) $\because DE \parallel AB$; $\therefore \angle FDE = \angle DFA$, $\angle CDE = \angle A$;
 $\because \angle DFA = \angle A$; $\therefore \angle FDE = \angle CDE$;2分
 $\therefore DE$ 平分 $\angle CDF$ 3分
- (2) $\because \angle A + \angle ABC + \angle B = 180^\circ$, $\angle C = 80^\circ$, $\angle ABC = 60^\circ$; $\therefore \angle A = 40^\circ$;
 $\because \angle DFA = \angle A = \angle FDE = \angle CDE$; $\therefore \angle FDE = \angle CDE = 40^\circ$; $\therefore \angle GDC = 80^\circ$; ...5分
 $\because \angle GDC + \angle C + \angle G = 180^\circ$; $\therefore \angle G = 180^\circ - 80^\circ - 80^\circ = 20^\circ$6分
24. (1) $S = a^2 + b^2 - \frac{1}{4}(a+b)^2 = \frac{3a^2 - 2ab + 3b^2}{4}$ 3分
- (2) 456分
25. (1) 解: (1) $m^2 - 4m - 5 = m^2 - 4m + 4 - 9 = (m-2)^2 - 9 = (m+1)(m-5)$2分
- (2) $\because -a^2 + 4a + 18 = -(a-2)^2 + 22$,
 \therefore 当 $a=2$ 时, 多项式 $-a^2 + 4a + 18$ 有最大值 22;5分
- (3) $\because a^2 + 3b^2 + 4a - 6b + 27 = a^2 + 4a + 4 + 3(b^2 - 2b + 1) + 20 = (a+2)^2 + 3(b-1)^2 + 20$,
 \therefore 当 $a=-2$, $b=1$ 时, 多项式 $a^2 + 3b^2 + 4a - 6b + 27$ 有最小值 20.8分
26. 解: (1) 证明略4分
(2) 不成立.5分
- $\angle CFE = \angle CAF + \angle ACF$ $\angle CEF = \angle B + \angle EAB$
 $\angle CFE - \angle CEF = \angle ACF - \angle B$
 $\angle CFE - \angle CEF = m - \angle BCD - (180 - m - \angle BCD) = 2m - 180$
当 $m > 90$ 时, $\angle CFE > \angle CEF$;7分
当 $m < 90$ 时, $\angle CFE < \angle CEF$8分
27. 解: (1) $\angle C$ 1分
(2) 解: ① 3; 4;3分
② 以 M 为交点"8"字型"中, 有 $\angle P + \angle CDP = \angle C + \angle CAP$,
以 N 为交点"8"字型"中, 有 $\angle P + \angle BAP = \angle B + \angle BDP$
 $\therefore 2\angle P + \angle BAP + \angle CDP = \angle B + \angle C + \angle CAP + \angle BDP$,
 $\because AP$ 、 DP 分别平分 $\angle CAB$ 和 $\angle BDC$,
 $\therefore \angle BAP = \angle CAP$, $\angle CDP = \angle BDP$, $\therefore 2\angle P = \angle B + \angle C$,4分
 $\because \angle B = 100^\circ$, $\angle C = 120^\circ$,
 $\therefore \angle P = \frac{1}{2}(\angle B + \angle C) = \frac{1}{2}(100^\circ + 120^\circ) = 110^\circ$;5分
- ③ $n\angle P = \angle B + (n-1)\angle C$, 其理由是:
 $\because \angle CAB = n\angle CAP$, $\angle CDB = n\angle CDP$,
 $\therefore \angle BAP = \frac{n-1}{n}\angle CAB$, $\angle BDP = \frac{n-1}{n}\angle CDB$,
以 M 为交点"8"字型"中, 有 $\angle P + \angle CDP = \angle C + \angle CAP$,
以 N 为交点"8"字型"中, 有 $\angle P + \angle BAP = \angle B + \angle BDP$ 7分
 $\therefore \angle C - \angle P = \angle CDP - \angle CAP = \frac{1}{n}(\angle CDB - \angle CAB)$,
 $\angle P - \angle B = \angle BDP - \angle BAP = \frac{n-1}{n}(\angle CDB - \angle CAB)$.
 $\therefore (n-1)(\angle C - \angle P) = \angle P - \angle B$.
 $\therefore n\angle P = \angle B + (n-1)\angle C$8分
- (3) 125.10分

