
2025-2026 学年八年级数学下学期期末考试

强化卷 · 答案版

一、选择题：本题共 6 小题，每小题 2 分，共 12 分。在每小题给出的四个选项中，只有一项是符合题目要求的。

题号	1	2	3	4	5	6
答案	D	D	D	C	A	B

二、填空题：本题共 12 小题，每小题 2 分，共 24 分。

7. -1

8. 720

9. 24

10. 5

11. 27

12. (5,1)

13. (-4,5)

14. 3

15. $y = 18 - \frac{1}{2}x$

16. 2

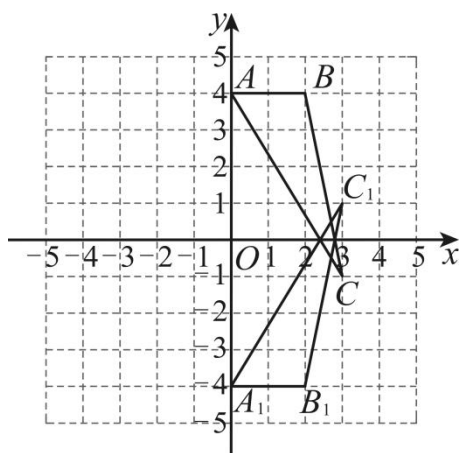
17. $0.5/\frac{1}{2}$

18. 5

三、解答题（本题共 7 小题，共 64 分。解答应写出文字说明、证明过程或演算步骤。）

19. (8 分)

【详解】(1) 解：如图： $B(2,4)$ ；



故答案为: $(2, 4)$;

(2) 解: 如图所示, $\triangle A_1B_1C_1$ 即为所求,

$A_1(0, -4)$, $B_1(2, -4)$, $C_1(3, 1)$.

20. (8 分)

【详解】(1) 解: 将 $A(-4, 1)$, $C(-5, 0)$ 代入 $y = kx + b$,

$$\text{得} \begin{cases} -4k + b = 1 \\ -5k + b = 0 \end{cases}$$

$$\text{解得: } \begin{cases} k = 1 \\ b = 5 \end{cases},$$

$\therefore$ 一次函数的解析式为 $y = x + 5$,

将 $A(-4, 1)$ 代入 $y = \frac{m}{x} (x < 0)$, 得 $m = -4$,

$\therefore$ 反比例的解析式为 $y = -\frac{4}{x} (x < 0)$;

(2) 解: $\because$ 直线 AC 的解析式为 $y = x + 5$ 与 y 轴交点 D ,

$\therefore$ 点 D 的坐标为 $(0, 5)$,

$$\text{由} \begin{cases} y = x + 5 \\ y = -\frac{4}{x} \end{cases},$$

$$\text{解得} \begin{cases} x = -1 \\ y = 4 \end{cases} \text{ 或 } \begin{cases} x = -4 \\ y = 1 \end{cases},$$

$\therefore$ 点 B 的坐标为 $(-1, 4)$,

$$\therefore S_{\triangle AOB} = S_{\triangle AOD} - S_{\triangle BOD} = \frac{1}{2} \times 4 \times 5 - \frac{1}{2} \times 1 \times 5 = 7.5.$$

21. (8 分)

【详解】(1) 解: 设解析式为 $y_2 = kx + b$,

把 $(10, 6)$, $(20, 8)$ 代入, 得 $\begin{cases} 10k + b = 6 \\ 20k + b = 8 \end{cases}$,

解得 $\begin{cases} k = 0.2 \\ b = 4 \end{cases}$,

$\therefore y_2 = 0.2x + 4$,

(2) 解: 设 $y_1 = mx$,

把 $(20, 8)$ 代入, 得 $20m = 8$,

解得 $m = 0.4$,

$\therefore y_1 = 0.4x$,

把 $x = \frac{9 \times 1000}{300} = 30$ 代入 y_1 y_2 , 得 $y_1 = 0.4 \times 30 = 12$, $y_2 = 0.2 \times 30 + 4 = 10$,

$\therefore 10 < 12$,

$\therefore$ 小明选择 B 品牌的共享单车更省钱;

(3) 解: 当 $0 < x \leq 10$ 时,

根据题意, 得 $6 - 0.4x = 2$,

解得 $x = 10$,

当 $10 < x \leq 20$ 时,

根据题意, 得 $0.2x + 4 - 0.4x = 2$,

解得 $x = 10$ (舍去),

当 $x > 20$ 时,

根据题意, 得 $0.4x - (0.2x + 4) = 2$,

解得 $x = 30$,

综上, 当骑行时间 x 为 10 或 30 时, 两种品牌的收费相差 2 元

22. (8 分)

【详解】(1) 证明: 如图, 连接 BD ,

$$\therefore AO = CO,$$

$$\because \angle AOE = \angle COF,$$

$$\therefore \triangle AOE \cong \triangle COF (\text{ASA}),$$

$$\therefore CF = AE,$$

$\therefore$ 四边形 $AECF$ 是平行四边形,

$$\because EF \perp AC,$$

$\therefore$ 四边形 $AECF$ 是菱形;

(2) 解: $\because$ 四边形 $ABCD$ 为矩形, $AD = 8$, $CD = 16$,

$$\therefore \angle D = 90^\circ,$$

$$\therefore AC = \sqrt{AD^2 + CD^2} = 8\sqrt{5},$$

$$\therefore OA = \frac{1}{2}AC = 4\sqrt{5},$$

$\because$ 四边形 $AECF$ 是菱形,

$$\therefore AF = CF,$$

$$\therefore DF = CD - CF = 16 - AF,$$

$$\because AD^2 + DF^2 = AF^2,$$

$$\therefore 8^2 + (16 - AF)^2 = AF^2,$$

$$\therefore AF = 10,$$

$$\therefore OF = \sqrt{AF^2 - OA^2} = \sqrt{10^2 - (4\sqrt{5})^2} = 2\sqrt{5},$$

$$\therefore EF = 2OF = 4\sqrt{5}.$$

24. (12 分)

【详解】(1) 解: $\because$ 点 $A(1,0)$, 点 $B(4,0)$,

$$\therefore AB = 3, \quad OB = 4,$$

$$\because S_{\triangle ABC} = 6,$$

$$\therefore S_{\triangle ABC} = \frac{1}{2} \times AB \times OC = \frac{1}{2} \times 3 \times OC = 6,$$

$$\therefore OC = 4,$$

$\because$ 点 C 在 y 轴负半轴上,

$$\therefore C(0, -4),$$

设直线 BC 的解析式是 $y = kx + b$,

$$\begin{cases} 4k + b = 0 \\ b = -4 \end{cases}, \text{ 解得 } \begin{cases} k = 1 \\ b = -4 \end{cases},$$

$\therefore$ 直线 BC 的解析式为 $y = x - 4$;

$\because OB = OC = 4, \angle BOC = 90^\circ$,

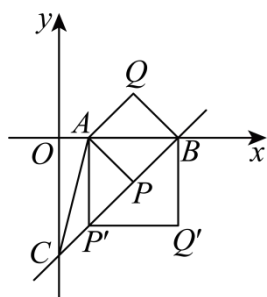
$\therefore$ 直线 BC 与 x 轴的夹角等于 45° .

(2) 解: ①当 AB 是正方形的边时, 对应的正方形为 $AP'Q'B$,

$\therefore$ 点 $A(1, 0)$, 点 $B(4, 0)$,

$\therefore AB = 3$,

$\therefore P'(1, -3), Q'(4, -3)$;



②当 AB 是正方形的对角线时, 对应的矩形为 $APBQ$,

$\therefore AB, PQ$ 是正方形对角线,

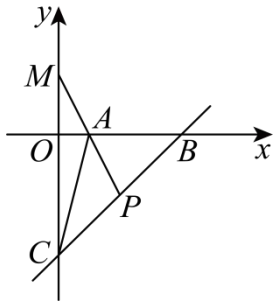
$\therefore$ 线段 AB 和线段 PQ 互相垂直平分,

$\therefore$ 点 P, Q 的横坐标为 $\frac{1+4}{2} = \frac{5}{2}$, $\therefore P\left(\frac{5}{2}, -\frac{3}{2}\right), Q\left(\frac{5}{2}, \frac{3}{2}\right)$.

综上所述, Q 点的坐标为 $(4, -3)$ 或 $\left(\frac{5}{2}, \frac{3}{2}\right)$;

(3) 解: 如图: 当点 M 在 y 轴的正半轴时, 此时点 P 在第三象限.

设 $P(t, t-4), M(0, m)$,



$\because \triangle PMC$ 的面积是 $\triangle ACP$ 面积的 2 倍,

$$\therefore S_{\triangle ACP} = S_{\triangle ACM},$$

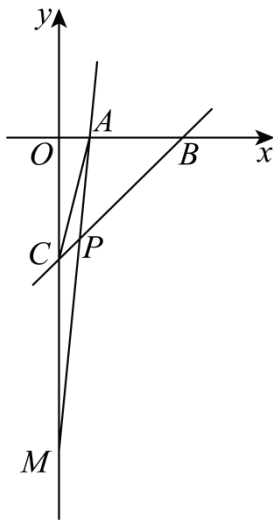
$\therefore AM = AP$, 即 A 为 MP 的中点,

$$\begin{cases} t+0=2 \times 1 \\ t-4+m=2 \times 0 \end{cases} \text{ 解得 } \begin{cases} t=2 \\ m=2 \end{cases},$$

$$\therefore t-4=2-4=-2,$$

$\therefore$ 点 P 的坐标为 $(2, -2)$;

如图: 当点 M 在 y 轴的负半轴时, 此时点 P 在第三象限.



$\because \triangle PMC$ 的面积是 $\triangle ACP$ 面积的 2 倍,

$$\therefore S_{\triangle ACP} = S_{\triangle ACM},$$

$$\therefore AP = \frac{1}{3} AM,$$

$$\begin{cases} t = 2 \times \frac{0+1}{3} = \frac{2}{3} \\ t-4 = 2 \times \frac{0+m}{3} \end{cases}, \text{ 解得: } \begin{cases} t = \frac{2}{3} \\ m = -5 \end{cases},$$

$$\therefore t-4=\frac{2}{3}-4=-\frac{10}{3},$$

$$\therefore \text{点 } P \text{ 的坐标为 } \left(\frac{2}{3}, -\frac{10}{3}\right);$$

综上, 点 P 的坐标为 $(2, -2)$ 或 $\left(\frac{2}{3}, -\frac{10}{3}\right)$.

25. (12 分)

【详解】(1) 解: 如图 1, 延长 CB 至点 F' , 使 $BF' = DF$, 连接 AF' ,

$\because$ 四边形 $ABCD$ 是正方形,

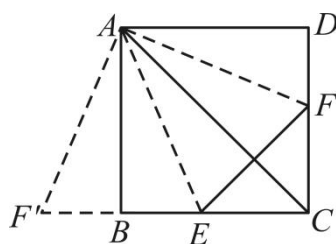


图1

$$\therefore \angle BAC = \angle DAC = \frac{1}{2} \angle BAD = 45^\circ, AB = BC = CD = AD, \angle BCD = \angle D = \angle ABE = 90^\circ,$$

$$\text{由折叠得: } \angle BAE = \angle CAE = \frac{1}{2} \angle BAC = 22.5^\circ, \angle DAF = \angle CAF = \frac{1}{2} \angle ADC = 22.5^\circ,$$

$$\therefore \angle EAF = 22.5^\circ + 22.5^\circ = 45^\circ,$$

设 $DF = x$,

$$\because AD = AB, \angle D = \angle ABF' = 90^\circ,$$

$$\therefore \triangle ADF \cong \triangle ABF' (\text{SAS}),$$

$$\therefore AF = AF', \angle DAF = \angle BAF' = 22.5^\circ = \angle BAE,$$

$$\because AB = AB, \angle ABE = \angle ABF' = 90^\circ,$$

$$\therefore \triangle ABE \cong \triangle ABF' (\text{SAS}),$$

$$\therefore BE = BF' = x,$$

$$\because \angle EAF = \angle EAF' = 45^\circ, AE = AE,$$

$$\therefore \triangle AEF' \cong \triangle AEF (\text{SAS}),$$

$$\therefore EF = EF' = 2x,$$

$\because$ 正方形 $ABCD$ 是正方形, 且边长 $= 1$,

$$\therefore BC = DC = 1,$$

$$\therefore CE = CF = 1 - x,$$

由勾股定理得: $CE^2 + CF^2 = EF^2$,

$$\therefore (1-x)^2 + (1-x)^2 = (2x)^2,$$

$$\therefore x_1 = -1 + \sqrt{2}, x_2 = -1 - \sqrt{2} \quad (\text{舍}),$$

$$\therefore EF = 2x = 2\sqrt{2} - 2,$$

故答案为: 45, $2\sqrt{2} - 2$;

(2) ①如图 2, 由旋转得: $\angle PAQ = 45^\circ$,

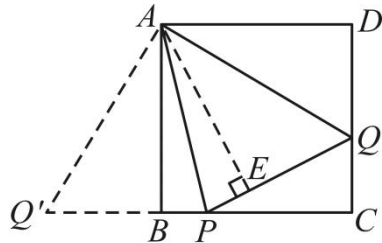


图2

延长 CB 至点 Q, 使 $BQ = DQ$, 连接 AQ' , 过点 A 作 $AE \perp PQ$ 于点 E,

同理得: $\triangle ADQ \cong \triangle ABQ$, $\triangle APQ \cong \triangle APQ$,

$$\therefore BQ = DQ = 3, PQ = PQ, \angle APB = \angle APE,$$

$$\therefore BP = 1,$$

$$\therefore PQ = 3 + 1 = 4,$$

$$\therefore PQ = 4,$$

设 $PC = a$, $BC = CD = a + 1$,

$$\therefore CQ = a + 1 - 3 = a - 2,$$

在 $\text{Rt}\triangle PCQ$ 中, $PC^2 + CQ^2 = PQ^2$,

$$\therefore a^2 + (a - 2)^2 = 4^2,$$

$$\therefore a^2 - 2a - 6 = 0,$$

解得: $a_1 = 1 - \sqrt{7}$ (舍), $a_2 = 1 + \sqrt{7}$,

$$\therefore AB = BC = a + 1 = 1 + \sqrt{7} + 1 = \sqrt{7} + 2,$$

$$\therefore \angle ABP = \angle AEP = 90^\circ, \angle APB = \angle APE, AP = AP,$$

$$\therefore \triangle APB \cong \triangle APE (\text{AAS}),$$

$$\therefore AE = AB = \sqrt{7} + 2,$$

$$\therefore \triangle APQ \text{ 的面积} = \frac{1}{2} \cdot PQ \cdot AE = \frac{1}{2} \times 4 \times (\sqrt{7} + 2) = 2\sqrt{7} + 4;$$

②分两种情况:

i) 如图 3, $PC = PM$, 过点 M 作 $MG \perp BC$ 于点 G, 则 $\angle BGM = \angle CGM = 90^\circ$,

设 $\angle BCM = a, PG = x$,

$$\therefore \angle CMP = \angle BCM = a,$$

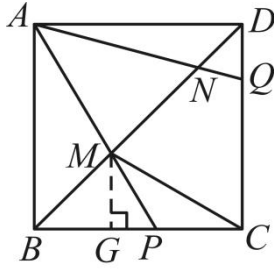


图3

$$\therefore \angle BPM = 2a,$$

$$\because AB = BC, \angle ABM = \angle CBM, BM = BM,$$

$$\therefore \triangle ABM \cong \triangle CBM,$$

$$\therefore \angle BAM = \angle BCM = a,$$

$$\because \angle ABC = 90^\circ,$$

$$\therefore \angle BAP + \angle APB = 90^\circ,$$

$$\therefore a + 2a = 90^\circ,$$

$$\therefore a = 30^\circ,$$

$$\therefore \angle BPM = 60^\circ,$$

$$\therefore \angle PMG = 30^\circ,$$

$$\therefore CP = PM = 2x, GM = \sqrt{3}x,$$

在 $\text{Rt}\triangle BMG$ 中, $\angle MBG = 45^\circ$,

$\therefore \triangle BMG$ 是等腰直角三角形,

$$\therefore BG = MG = \sqrt{3}x,$$

$$\because BC = a,$$

$$\therefore \sqrt{3}x + x + 2x = a,$$

$$\therefore x = \frac{a}{3 + \sqrt{3}} = \frac{(3 - \sqrt{3})a}{6},$$

$$\therefore PC = 2x = \frac{(3-\sqrt{3})a}{3};$$

ii) 如图 4, $PC = PM$,

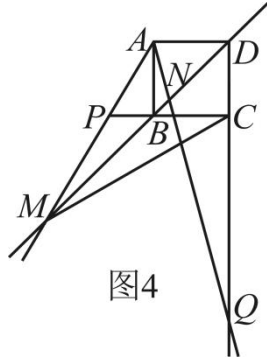


图4

$$\therefore \angle PCM = \angle PMC,$$

同理得: $\triangle ABM \cong \triangle CBM$,

$$\therefore \angle BAM = \angle PCM = \angle CMP,$$

$$\therefore \angle APB = \angle PCM + \angle PMC = 2\angle PAB,$$

$$\therefore \angle ABP = 90^\circ,$$

$$\therefore \angle APB + \angle PAB = 90^\circ,$$

$$\therefore \angle PAB = 30^\circ,$$

设 $PB = b$, 则 $AP = 2b$,

$$\therefore AB = \sqrt{3}b,$$

$$\therefore AB = a,$$

$$\therefore a = \sqrt{3}b,$$

$$\therefore b = \frac{\sqrt{3}}{3}a,$$

$$\therefore PC = BC + PB = a + \frac{\sqrt{3}}{3}a = \frac{3+\sqrt{3}}{3}a;$$

综上, 线段 CP 的长度 $\frac{3-\sqrt{3}}{3}a$ 或 $\frac{3+\sqrt{3}}{3}a$.