

答案和解析

1. 【答案】DBDDACDDDC

11. 【答案】 ± 1

12. 【答案】(4,3) 或 (-2,3) 或 (2,-3)

13. 【答案】14.14

14. 【答案】 180° 或 18°

15. 【答案】①③④

16. 【答案】 $1 \pm 2i$

17. 【答案】(64,4)

18. 【答案】 $(0, -\frac{3}{2})$

19. 【答案】解：(1) 原式 $= 3 \times (2 - 5) - 3$

$$= 3 \times (-3) - 3$$

$$= -9 - 3$$

$$= -12;$$

$$(2) \text{原式} = \sqrt{2} - 1 + \sqrt{3} - \sqrt{2} + 2 - \sqrt{3}$$

$$= 1.$$

20. 【答案】解：(1) $\because (x-1)^2 = 4,$

$$\therefore x-1 = \pm 2,$$

$$\therefore x = 3 \text{ 或 } -1.$$

$$(2) \text{由题意得, } 3a + 2 + a - 10 = 0,$$

$$\text{解得: } a = 2,$$

$$\text{则这个正数的值为 } (3 \times 2 + 2)^2 = 64.$$

21. 【答案】证明：延

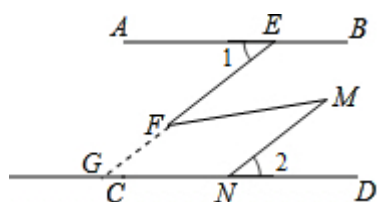
长 EF 交 CD 于 G ,

$$\because AB \parallel CD,$$

$$\therefore \angle 1 = \angle EGD$$

$$\because \angle 1 = \angle 2,$$

$$\therefore \angle EGD = \angle 2$$



$$\therefore EF \parallel MN,$$

$$\therefore \angle EFM = \angle M.$$

22. 【答案】(1) $\sqrt{10}$

$$(2) \because AB^2 = 2a^2 = 2 \times (\sqrt{17})^2 = 34,$$

$$\therefore AB = \sqrt{34} \text{ cm},$$

设长方形的长为 $3x \text{ cm}$, 宽为 $2x \text{ cm}$,

$$\therefore 3x \cdot 2x = 30,$$

$$\therefore x^2 = 5,$$

$$\because x > 0,$$

$$\therefore x = \sqrt{5},$$

$$\therefore \text{长方形的长为 } 3\sqrt{5} \text{ cm},$$

$$\because \sqrt{34} < 6 < 3\sqrt{5},$$

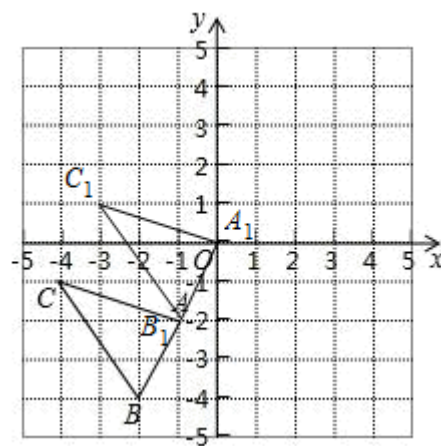
$$\therefore \sqrt{34} < 3\sqrt{5},$$

即长方形的长超过了正方形的边长,

故不能裁出符合要求的长方形.

23. 【答案】解：(1) 如图所示, $\triangle A_1B_1C_1$ 即为所求; $A_1(0, 0)$,

$$B_1(-1, -2), C_1(-3, 1);$$



(2) $\triangle A_1B_1C_1$ 的面积为:

$$\frac{1}{2}(1+3) \times 3 - \frac{1}{2} \times 1 \times 3 - \frac{1}{2} \times 1 \times 2 = 6 - 1.5 - 1 = 3.5$$

;

(3) 设 $P(0, y)$, 则 $A_1P = |y|$,

$\therefore \triangle A_1B_1P$ 的面积是 1,

$$\therefore \frac{1}{2} \times |y| \times 1 = 1,$$

解得 $y = \pm 2$,

\therefore 点 P 的坐标为 $(0, 2)$ 或 $(0, -2)$.

24. 【答案】解： (1) 证明： $\because AB \parallel DE$,
 $\therefore \angle EDF = \angle DAB$,
 $\because DF$ 平分 $\angle EDC$,
 $\therefore \angle EDF = \angle ADC$,
 $\therefore \angle ADC = \angle DAB$,
 $\because \angle FDC + \angle ABC = 180^\circ$,
 $\therefore \angle DAB + \angle ABC = 180^\circ$,
 $\therefore AD \parallel BC$;

(2) $\because \angle CFB = \frac{3}{2} \angle DCF$,
 \therefore 设 $\angle DCF = \alpha$, 则 $\angle CFB = 1.5\alpha$,
 $\because CF \parallel AB$,
 $\therefore \angle ABF = \angle CFB = 1.5\alpha$,
 $\because BE$ 平分 $\angle ABC$,
 $\therefore \angle ABC = 2\angle ABF = 3\alpha$,
 $\because AD \parallel BC$,
 $\therefore \angle ADC + \angle BCD = 180^\circ$,
 $\because \angle FDC + \angle ABC = 180^\circ$,
 $\therefore \angle BCD = \angle ABC = 3\alpha$,
 $\therefore \angle BCF = 2\alpha$,
 $\because CF \parallel AB$,
 $\therefore \angle ABC + \angle BCF = 180^\circ$,
 $\therefore 3\alpha + 2\alpha = 180^\circ$,
 $\therefore \alpha = 36^\circ$,
 $\therefore \angle BCD = 3 \times 36^\circ = 108^\circ$;

(3) 70°