

۲۰ عالی نوشتی

$$A(-2, k)$$

$$\frac{m-k}{k+2} = -\frac{1}{2} \Rightarrow m-k = -2$$

$$B(4, m)$$

$$S: AB^2 = (4-(-2))^2 + (m-k)^2 = 36+9 = 45 \quad \checkmark$$

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$$x-1 \leq 3-1-x \rightarrow x \leq 3 \Rightarrow x \leq \frac{3}{2} \quad m_{AB} = -\frac{3}{2} \Rightarrow m_{BC} \leq \frac{3}{2}$$

$$x \leq \frac{3}{2} \rightarrow 1 - \left(\frac{3}{2} \times \frac{3}{2}\right) \leq 1-2 = -1 \Rightarrow C\left(\frac{3}{2}, -1\right) \quad B\left(\frac{3}{2}, \frac{3}{2}\right) \quad A\left(-1, \frac{3}{2}\right) \quad B\left(\frac{3}{2}, \frac{3}{2}\right)$$

$$AB \leq \sqrt{16+9} = 5 \quad \checkmark \quad BC \leq \sqrt{\frac{9}{4}+1} = \sqrt{\frac{13}{4}} = \frac{\sqrt{13}}{2} \quad \checkmark$$

$$P \leq 2\left(2 + \frac{1}{2}\right) = 2 \times \frac{5}{2} = 5 \quad \checkmark$$

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$$m = -\frac{2m}{m^2-1} \quad m \leq \tan 45^\circ \leq \sqrt{3} \Rightarrow \frac{-2m}{m^2-1} \leq \sqrt{3} \rightarrow \sqrt{3}m^2 + 2m - \sqrt{3} \leq 0$$

$$\Delta \leq 16 > 0 \quad |\alpha - \beta| = \frac{\sqrt{\Delta}}{2|\alpha|} = \frac{\sqrt{16}}{\sqrt{3}} = \frac{4}{\sqrt{3}} = \frac{4\sqrt{3}}{3} \quad \checkmark$$

$$\alpha \leq 4 + 4(\sqrt{3})(\sqrt{3}) = 4 + 12 = 16$$

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$$m_{BC} \leq \frac{11-3}{4-3} = 8 \quad BC: y \leq 2x - b \rightarrow 4 \leq 4 - b \Rightarrow b \leq 0$$

$$y \leq 2x - 3 \Rightarrow y - 2x + 3 \leq 0$$

$$AH = \frac{|(2)(1) - (4)(1) - 3|}{\sqrt{2^2 + 1^2}} = \frac{10}{\sqrt{5}} = \frac{10\sqrt{5}}{5} = 2\sqrt{5} \quad \checkmark$$

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$$AB: 2y + 4x = 14 \quad BC: 2y - 4x = -14$$

$$-4x + 14 \leq 4x - 14 \rightarrow 11x \leq 28 \Rightarrow x \leq \frac{28}{11} \quad y \leq 1 \quad B(2, 1)$$

$$AC: 4y - 2x - 14 \leq 0$$

$$BH \Rightarrow \frac{|4(1) - 2(2) - 14|}{\sqrt{16+9}} = \frac{12}{5} = 2.4 \quad \checkmark$$

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$$m = \frac{0 - (-4)}{\frac{r}{\sqrt{2}} - 0} = \frac{4}{\frac{r}{\sqrt{2}}} = -1 \quad y = -1x + 8$$

$$\begin{cases} x \\ y = 8 \end{cases} \quad y = -1x - 4 \xrightarrow{y=8} 8 = -1x - 4 \rightarrow 9x = -4 \rightarrow x = -\frac{4}{9}$$

$$b = a\sqrt{2} = \frac{4}{9} \times \sqrt{2} = \frac{4\sqrt{2}}{9} \checkmark$$

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$$m = \frac{a}{1} = a \quad m = -\frac{1}{a} = \frac{1}{a} \quad a = \frac{1}{a} \rightarrow a^2 = 1 \Rightarrow a = \pm 1$$

$$\text{if } a = 1 \rightarrow \begin{cases} y = x = 1 \\ y = x = 0 \end{cases} \quad A(1, r) \checkmark \rightarrow a = \frac{|1-0|}{\sqrt{r}} = \frac{1}{\sqrt{r}} = \frac{\sqrt{r}}{r}$$

$$\text{if } a = -1 \rightarrow \begin{cases} y = x = 1 \\ y = x = r \end{cases} \quad A(1, r) \times \quad b^2 + a^2 = c^2 \rightarrow b^2 + \frac{1}{r} = a^2 \rightarrow b^2 = \frac{r-1}{r} \rightarrow b = \frac{\sqrt{r-1}}{\sqrt{r}} \quad S = \frac{1}{r} \times \frac{\sqrt{r-1}}{\sqrt{r}} = \frac{\sqrt{r-1}}{r} \checkmark$$

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$$AB = \frac{|1-0-1|}{\sqrt{1+1}} = \frac{2}{\sqrt{2}} \quad \tan C = \frac{1}{\sqrt{10}}$$

$$\tan C = \frac{AB}{BC} = \frac{1}{\sqrt{10}} \rightarrow BC = \frac{1}{\sqrt{10}} \rightarrow S = \frac{1}{2} \times \frac{2}{\sqrt{10}} \times \frac{1}{\sqrt{10}} = \frac{1}{10}$$

$$= \frac{1}{10} \checkmark$$

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$$m = \frac{a-b}{\frac{1}{r} - \frac{1}{r}} = \sqrt{r} \Rightarrow a-b = \frac{\sqrt{r}}{r}$$

$$AB = \sqrt{(a-b)^2 + \left(\frac{1}{r} - \frac{1}{r}\right)^2} = \sqrt{\left(\frac{\sqrt{r}}{r}\right)^2 + \left(\frac{1}{r}\right)^2} = \sqrt{\frac{r}{r^2} + \frac{1}{r^2}} = \frac{\sqrt{r+1}}{r}$$

$$b = \sqrt{r} a = \sqrt{r} \times \frac{1}{r} = \frac{\sqrt{r}}{r} \checkmark$$

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$$r = \sqrt{9+16} = 5 \quad m = \frac{r}{-r} = -\frac{r}{r} \rightarrow m = -\frac{r}{r} \rightarrow y+r = -\frac{r}{r}(x+r)$$

$$\rightarrow y = -\frac{r}{r}x + \frac{9}{r} - r \Rightarrow y = -\frac{r}{r}x - \frac{r-9}{r} \quad y = \frac{r}{r}x + b$$

$$\rightarrow \frac{b}{\sqrt{1+\frac{r^2}{r^2}}} = d \Rightarrow b = \frac{d}{\sqrt{2}} \times \sqrt{2} = \frac{rd}{r} \quad y = \frac{r}{r}x + \frac{rd}{r}$$

$$\frac{r}{r}x - \frac{rd}{r} = \frac{r}{r}x + \frac{rd}{r} \rightarrow \frac{9+16}{1r}x = \frac{100+rd}{1r} \rightarrow \frac{rd}{1r}x = -\frac{11rd}{1r} \Rightarrow x = -11, y = -1$$

$$-Vx - V \leq V \checkmark$$

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