

x y x y' $\frac{y}{x} = \frac{a}{r}$ $\frac{y'}{x} = \frac{y'}{r} = \frac{\sqrt{a+1}}{r}$ (1)

$y' = r(1 + \sqrt{a}) \rightarrow \frac{y'}{y} = \frac{r \times r(1 + \sqrt{a})}{r \times a} = \frac{r(1 + \sqrt{a})}{a}$ (2)

x y $d = \sqrt{x^2 + y^2}$ $\frac{\sqrt{x^2 + y^2}}{x} = \frac{1 + \sqrt{a}}{r} \rightarrow \frac{x^2 + y^2}{x^2} = \frac{r^2(1 + \sqrt{a})^2}{r^2} = \frac{r^2(1 + \sqrt{a})^2}{r^2}$ (3)

$1 + \frac{y^2}{x^2} = \frac{r^2(1 + \sqrt{a})^2}{r^2} \rightarrow \frac{y^2}{x^2} = \frac{r^2(1 + \sqrt{a})^2}{r^2} - 1 \rightarrow \frac{x^2}{y^2} \left(\frac{dy}{dx} \right)^2 = \frac{r^2}{1 + \sqrt{a}}$

$ra^2 + ka = k - 12a + 9a^2 \rightarrow 9a^2 - 14a + k = 0 \rightarrow (9a - 1)(a - 1) = 0$ (4)

$a \rightarrow r \rightarrow \times \bar{O} \bar{O} \bar{E}$

$\rightarrow \frac{r}{v} \rightarrow \frac{a+1}{a} = \frac{9}{r}$

$\sqrt{x+1} \left(\frac{r - \sqrt{x-1}}{10-x} \right) = \sqrt{x+1} \rightarrow \sqrt{x+1} \left(\frac{-r\sqrt{x-1}}{10-x} \right) = \sqrt{x-1}$ (5)

$\rightarrow r\sqrt{x+1} = 10-x \quad (x > 10) \quad x^2 - 2kx + 9y = 0$

$x \rightarrow x = 12 + \sqrt{4k-1} \rightarrow \sqrt{O} \bar{O} \bar{E}$

ا جواب

$\sqrt{r-x} = a \rightarrow \frac{1}{r+a} - \frac{1}{r-a} = \frac{a^2}{a^2} \rightarrow \frac{r}{a^2 - r} = \frac{1}{a}$ (6)

$\rightarrow a^2 - r = 10 \rightarrow \sqrt{r-x} = -\sqrt{1k} \rightarrow \sqrt{r-x} = -\sqrt{1k} \rightarrow x = -12$

رسم قوس نهاده

$$\frac{2x^2 - 2x + 1}{x^2(1-x)^2} = \frac{140}{9} \rightarrow t = x(1-x) \rightarrow \frac{1 - 2t}{t^2} = \frac{140}{9} \quad (4)$$

$$\begin{aligned} t \rightarrow -\frac{2}{10} = x(1-x) &\rightarrow \frac{1}{x} + \frac{\sqrt{100}}{10} \checkmark \\ t \rightarrow \frac{2}{14} = x(1-x) &\rightarrow \frac{1}{x} - \frac{\sqrt{100}}{10} \checkmark \end{aligned} \left\{ \frac{1}{x} + \frac{2}{x} + \frac{1}{x} + \frac{1}{x} + \frac{\sqrt{100}}{10} - \frac{\sqrt{100}}{10} = \frac{4}{x} \right.$$

$$\text{I} \quad x + 2 > 0 \rightarrow \boxed{x > -2} \quad (5)$$

$$\text{II} \quad -x^2 + 4x - 1 > 0 \rightarrow (x-2)(-x+1) > 0 \rightarrow \frac{2}{-1} < x < \frac{1}{-1} \rightarrow \boxed{2 < x < 1} \quad (6)$$

$$\text{III} \quad -x^3 + 4x^2 + 20x - 100 > 0 \rightarrow -(x-5)(x+5)(x-4) > 0 \quad (7)$$

$$\begin{aligned} \frac{-5}{+} & \frac{4}{-} & \frac{5}{+} \\ \frac{-5}{+} & \frac{4}{-} & \frac{5}{+} \end{aligned} \quad \boxed{(-\infty, -5] \cup [4, 5]}$$

$$\text{I} \cap \text{II} \cap \text{III} = \{4\}$$

$$x = \{4\}$$

اجواب

$$\begin{aligned} y_1 &= -\frac{x}{2} + \frac{14}{2} \\ y_2 &= |x+2| + |x-1| \end{aligned} \left\{ y_1 = y_2 \rightarrow |x+2| + |x-1| = -\frac{x}{2} + \frac{14}{2} \right. \quad (8)$$

$x = -2$	$x = 1$	$x = 4$
$x = -4 \sqrt{6}$	$x = 2 \sqrt{6}$	$x = 2 \sqrt{6}$
$y = 2$	$y = 2$	$y = 2$

$$A \mid -4 \quad B \mid 2 \quad d = \sqrt{(2-4)^2 + (-4-2)^2} = 2\sqrt{10}$$

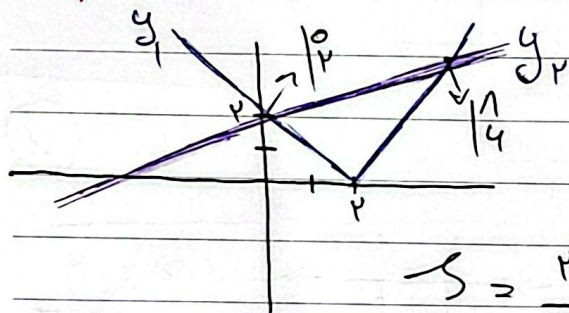
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$$y = \sqrt{(x-2)^2} = |x-2| \rightarrow |x-2| = x+2$$

$$y = \frac{1}{2}x + 2$$

→ $2x - 2 = x + 2 \quad x = 4 \quad y = 4 \quad \left| \begin{smallmatrix} 1 \\ 4 \end{smallmatrix} \right.$

→ $2x - 2 = -x - 2 \quad x = 0 \quad y = 2 \quad \left| \begin{smallmatrix} 1 \\ 0 \end{smallmatrix} \right.$



$$d_{12} = \sqrt{(0-2)^2 + (2-0)^2} = 2\sqrt{2}$$

$$d_{13} = \sqrt{(4-2)^2 + (4-0)^2} = 4\sqrt{2}$$

$$S = \frac{2\sqrt{2} \times 4\sqrt{2}}{2} = \boxed{12}$$

فواصل	z
نقطه	$z-1$
پایه	$?$

$$\frac{1}{z} + \frac{1}{z-1} = \frac{1}{20} \rightarrow \frac{2z-1}{z^2-9z} = \frac{1}{20}$$

→ $z^2 - 9z + 110 = 0$

$z \rightarrow 10$ ✓

$z \rightarrow -10$ ✗

$$نقطه = 10 - 1 = \boxed{9}$$