

معرض
 $\frac{\text{طول}}{\text{عرض}} = \frac{5}{4}$

بدرجه قرار دهیم
 $\frac{\text{طول} + 5}{\text{عرض}} = \frac{1+\sqrt{5}}{2} \Rightarrow \frac{\text{طول}}{\text{عرض}} + \frac{5}{\text{عرض}} = \frac{1+\sqrt{5}}{2} \Rightarrow$

19, 25

برای جابجایی

$$\frac{S \text{ متبیل طای}}{S \text{ متبیل اولی}} = \frac{\text{طول} \times \text{عرض}}{\text{طول} \times \text{عرض}} = \frac{\frac{5}{4}}{\frac{5}{4}} = \frac{2+\sqrt{5}}{5}$$

①
 $\frac{\text{طول اولی}}{\text{عرض اولی}} = \frac{5}{4} \times \frac{2}{1+\sqrt{5}}$

$\Rightarrow \frac{\text{طول اولی}}{\text{عرض اولی}} = \frac{5}{2+\sqrt{5}}$

②
 $\frac{\text{قطر}^2}{\text{طول}^2} = \frac{(1+\sqrt{5})^2}{4} = \frac{4+2\sqrt{5}+5}{4} = \frac{2+\sqrt{5}}{2}$

$\frac{\text{قطر}}{\text{طول}} = \frac{1+\sqrt{5}}{2}$

$\frac{\text{طول}}{\text{عرض}} =$

$\text{طول}^2 + \text{عرض}^2 = \text{قطر}^2$
 $\Rightarrow 1 + \frac{\text{عرض}^2}{\text{طول}^2} = \frac{\text{قطر}^2}{\text{طول}^2} \Rightarrow \frac{\text{عرض}^2}{\text{طول}^2} = \frac{2+\sqrt{5}}{2} - 1 = \frac{1+\sqrt{5}}{2}$

$\Rightarrow \frac{\text{طول}}{\text{عرض}} = \frac{2}{1+\sqrt{5}}$

$2a + \sqrt{4a^2 + 4a} = 2$

$\Rightarrow \sqrt{4a^2 + 4a} = 2 - 2a \xrightarrow{\text{مربع}} 4a^2 + 4a = 4 - 8a + 4a^2 \Rightarrow 12a = 4 \Rightarrow a = \frac{1}{3}$

$\frac{1}{3} \times \frac{1}{3} - 12 \times \frac{1}{3} + 4 = 0 \Rightarrow (a-1)(a-1) = 0 \Rightarrow a^2 - 12a + 4 = 0$

⑤

$\frac{1}{3} = 2, \frac{1}{3}$

استاندارد
 $\frac{4}{9} + \frac{1}{9} = \frac{1}{3} = 2 \checkmark$
 $\frac{a+1}{a} = \frac{\frac{1}{3}+1}{\frac{1}{3}} = \frac{\frac{4}{3}}{\frac{1}{3}} = 4$

$\frac{\sqrt{x+1}}{\sqrt{x-1}+3} - \frac{\sqrt{x+1}}{3-\sqrt{x-1}} = \frac{x-1}{\sqrt{x-1}}$

$$\frac{3\sqrt{x+1} - \sqrt{x^2-1}}{(3-\sqrt{x-1})(\sqrt{x+1}) - (3+\sqrt{x-1})(\sqrt{x+1})} = \frac{3\sqrt{x+1} - \sqrt{x^2-1}}{(3+\sqrt{x-1})(3-\sqrt{x-1})}$$

$$\frac{-2\sqrt{x^2-1}}{9-(x-1)} = \frac{-2\sqrt{x^2-1}}{10-x} = \frac{x-1}{\sqrt{x-1}} = \sqrt{x-1}$$

$$(1-x)(\sqrt{x-1}) = -2\sqrt{x^2-1} \quad (\sqrt{x-1})(\sqrt{x+1})$$

$$1-x = -2\sqrt{x+1}$$

$$1-x = -2\sqrt{x+1} \Rightarrow 1-x = -2\sqrt{x+1} \Rightarrow 1-x = -2\sqrt{x+1}$$

$$\div -2 \Rightarrow \frac{x}{2} - \frac{1}{2} = \sqrt{x+1}$$

$$\rightarrow x+1 = \frac{x^2}{4} + 2x - 1$$

$$\rightarrow \frac{x^2}{4} - 4x + 2 = 0 \Rightarrow x^2 - 16x + 8 = 0$$

داده

$$\Delta = b^2 - 4ac = 256 - 4 \times 8 = 192 \Rightarrow \sqrt{\Delta} = \sqrt{192} = 8\sqrt{3}$$

$$x = \frac{-b \pm \sqrt{\Delta}}{2a} = \frac{16 \pm 8\sqrt{3}}{2} = 8 \pm 4\sqrt{3}$$

۱. اگر x پس $8-4\sqrt{3}$ غیر صحیح قبل باشد و در اینجا ارزش مثبت دارد

$$\sqrt{x-1} \Rightarrow x > 1 \quad \sqrt{x+1} \Rightarrow x > -1 \quad \cap \Rightarrow x > 1$$

$$\frac{1}{\sqrt{x-1}+2} - \frac{1}{x-\sqrt{x-1}} = \frac{x-1}{2\sqrt{x-1}}$$

$$\frac{x-\sqrt{x-1}-\sqrt{x-1}-2}{(x-\sqrt{x-1})(x+\sqrt{x-1})} = \frac{-2\sqrt{x-1}}{x-(x-1)} = \frac{-2\sqrt{x-1}}{1-x} = \frac{-2\sqrt{x-1}}{2-x}$$

$$\rightarrow \frac{(x-1)(x+1)}{x-1} = \frac{-10(x-1)}{-20+10x} \Rightarrow x^2+10x-20=0 \Rightarrow (x+12)(x-2)=0$$

$$x=2, -12$$

۲. اگر x غیر صحیح عبارت دایره منفرجه

$$\frac{1}{\sqrt{x-1}+2} - \frac{1}{x-\sqrt{x-1}} = \frac{1}{2} - \frac{1}{2} = \frac{x-2}{2} \checkmark$$

$$\frac{1}{\sqrt{14}+2} - \frac{1}{2-\sqrt{14}} = \frac{14}{2\sqrt{14}} \rightarrow \frac{2-\sqrt{14}-(2+\sqrt{14})}{(2-\sqrt{14})(2+\sqrt{14})} = \frac{14}{2\sqrt{14}}$$

$$2-14 = -12$$

$$\frac{1}{x^r} + \frac{1}{(1-x)^r} = \frac{14}{9}$$

$$\frac{1+x^r-2x^r}{(1-x)^r + x^r} = \frac{14x^r-2x^r+1}{(1-x)^r x^r} = \frac{14}{9}$$

$$\left(\frac{1}{x} + \frac{1}{1-x}\right)^r - r\left(\frac{1}{x} \times \frac{1}{1-x}\right) \left(\frac{1}{x-x^r}\right) - \left(\frac{r}{x-x^r}\right) = \frac{14}{9}$$

$$t^r - rt + 1 = \frac{14}{9} + 1 \Rightarrow (t-1)^r = \frac{149}{9} \Rightarrow t-1 = \pm \frac{14}{r}$$

$$\begin{cases} t = \frac{14}{r} \\ t = -\frac{14}{r} \end{cases}$$

$$\frac{1}{x-x^r} = \frac{14}{r} \quad x_1 = 1$$

$$\frac{1}{x-x^r} = -\frac{14}{r} \quad x_2 = 1$$

$$1+1=2$$

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$$\sqrt{x + \sqrt{-x^r + 4x^r + 20x - 1}} + \sqrt{x^r + \sqrt{-x^r + 4x - 1}} = x + r$$

مقدار حدیاب (V)

$$x + r \geq 0 \Rightarrow x \geq -r$$

$$-x^r + 4x - 1 \geq 0 \Rightarrow x^r - 4x + 1 \leq 0$$

$$(x-r)(x-r) \leq 0 \quad r \geq x \geq r$$

$$+ \quad - \quad +$$

^

$$x = r$$

$$-x^r + 4x^r + 20x - 1 \geq 0$$

مقدار حدیاب

$$x^r(x-r) + 20(x-r)$$

$$(x-r)(x^r-20) = (x-r)(x+20)(x-20) \geq 0$$

$$- \quad + \quad - \quad +$$

$$-\infty < x \leq -20$$

$$r \leq x \leq 20$$

5

$$\sqrt{r + \sqrt{-4r + 4r + 100 - 1}} + \sqrt{14 + \sqrt{-14 + 4r - 1}}$$

$$r + r = 2r \checkmark$$

مقدار حدیاب

$$y = |x+r| + |x-1| \quad ry + x = 14 \Rightarrow ry = 14 - x \Rightarrow y = \frac{14-x}{r}$$

1

$$\boxed{x = -r} \checkmark$$

$$-x - r - x + 1 = \frac{14-x}{r} \quad x + r - x + 1 = \frac{14-x}{r} \Rightarrow 4x + r = 14 - x \Rightarrow x = 2 \checkmark$$

$$-4x - r = 14 - x \Rightarrow 4 = 14 - x \Rightarrow \boxed{x = 10} \checkmark$$

5

$$x = r \Rightarrow y = \frac{1V - x}{r} = \frac{1V - r}{r} = \Delta$$

$$x = -r \Rightarrow y = \frac{1V + r}{r} = V$$

$$\sqrt{(x_B - x_A)^2 + (y_B - y_A)^2} = \sqrt{\frac{(r + \varepsilon)^2}{r^2} + \frac{(\delta - r)^2}{r^2}} = \sqrt{K_2} = r\sqrt{1.1}$$

④ استقامت معرور تابع

$$y = \frac{1}{r}x + r \quad y = \sqrt{x^2 - rx + r} = \sqrt{(x - r)^2} = |x - r|$$

$$x \geq 0 \quad x - r$$

$$x \leq 0 \quad -x + r$$

$$x - r = \frac{1}{r}x + r$$

$$\frac{r-1}{r}x = r \Rightarrow \boxed{x = \frac{r}{r-1}}$$

$$-x + r = \frac{1}{r}x + r$$

$$\Rightarrow \boxed{x = 0}$$

$$S - S_{\text{مستقیم}} = \frac{r \times 1}{r} - \frac{r \times r}{r} - \frac{r \times r}{r} - \frac{r \times r}{r} = -r - 1r - 1r$$

$$rA - r^2 = \boxed{1r}$$

$$\frac{1}{x} + \frac{1}{x+q} = \frac{1}{r}$$

$$\frac{x+q+x}{x(x+q)} = \frac{r}{x^2+qx} = \frac{1}{r} \Rightarrow \frac{r}{x} + 1 = \frac{r}{x} + \frac{q}{x}$$

$$x^2 - r^2 - 1 = 0$$

$$(x - r)(x + r) = 0$$

$$\boxed{x = r} \quad x = -r$$

⑤ $x+q$ فرما

⑤

⑥

⑤

