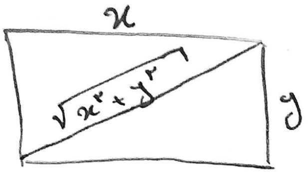
هلیا غفاری 11B

۲)



$$\frac{\sqrt{x^2+y^2}}{x} = \frac{1+\sqrt{5}}{2} \to 2\sqrt{x^2+y^2} = x(1+\sqrt{5})$$

$$\xrightarrow{\text{توان ۲}} 4(x^2+y^2) = x^2(1+5+\overset{6+2\sqrt{5}}{2\sqrt{5}}) \to 4x^2+4y^2 = 6x^2+2\sqrt{5}x^2$$

$$\Rightarrow 4y^2 = (2+2\sqrt{5})x^2 \to \frac{x^2}{y^2} = \frac{4}{2+2\sqrt{5}} = \boxed{\frac{2}{1+\sqrt{5}}}$$

۳)

$$3a+\sqrt{2a^2+4a} = 2 \to \sqrt{2a^2+4a} = 2-3a$$

$$\xrightarrow{\text{توان 2}} 2a^2+4a = 4+9a^2-12a \to 7a^2-16a+4 = 0$$

$$a^2-16a+28=0 \to (a-2)(a-14)=0 \to a=\frac{14}{7} , \frac{2}{7} = 2 , \frac{2}{7}$$

زیر رادیکال $\geq 0 \to 2a^2+4a \geq 0 \to$

$$\begin{array}{ccccc} & -2 & & 0 & \\ + & & - & & + \end{array}$$

برقرار

$$\sqrt{2a^2+4a} = \underbrace{2-3a}_{\text{جواب √ باید مثبت باشد}} \to 2-\frac{6}{7} \geq 0 \checkmark \quad , \quad 2-6 < 0 \times$$

$$\Rightarrow a = \frac{2}{7} \qquad \frac{a+1}{a} = \frac{\frac{2}{7}+1}{\frac{2}{7}} = \frac{\frac{9}{7}}{\frac{2}{7}} = \frac{9}{2} = 4.5$$

۴)

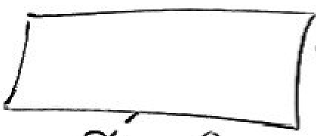
$$\frac{\cancel{3\sqrt{x+1}} - \sqrt{x^2-1} - \sqrt{x^2-1} - \cancel{3\sqrt{x+1}}}{10-x} = \frac{-2\sqrt{x^2-1}}{10-x}$$

$$\frac{-2\times\cancel{\sqrt{x-1}}\times\sqrt{x+1}}{10-x} = \cancel{\sqrt{x-1}} \Rightarrow -2\sqrt{x+1} = 10-x$$

$$\Rightarrow 2\sqrt{x+1} = \frac{x-10}{2} \xrightarrow{\text{توان ۲}} 4x+4 = \cancel{x^2+100-20x}$$

$$x^2-24x+10$$

(1)



$$y^2 \quad \frac{x'}{\cancel{4}_{2}} = \frac{\sqrt{5}+1}{2} \Rightarrow x = 2\sqrt{5}+2$$

$$\frac{S'}{S} = \frac{\cancel{4}\times x'}{\cancel{4}\times 5} = \frac{2(\sqrt{5}+1)}{5}$$

(9)

$$\frac{1}{x^2} + \frac{1}{(1-x)^2} = \frac{160}{9}$$

(10)

$$\frac{1}{x} + \frac{1}{x+9} = \frac{1}{20} \qquad \frac{20(x+9) + x(20) = x(x+9)}{20(x)(x+9)} \Leftarrow$$

$$20x+180+20x-x^2-9x=0$$

$$x^2-31x+180=0 \Rightarrow (x-36)(x+5)=0$$

$$x = 36 \text{ و } -5$$