

تکلیف شماره ۱۸ سرشار ریاضی یازدهم پسر B ۲۰ آفرین

۱-  $\frac{x}{y} = \frac{1}{\sqrt{5}} \Rightarrow x = \frac{y}{\sqrt{5}}$  و  $\frac{x'}{y} = \frac{\sqrt{5}+1}{2} \Rightarrow x' = \frac{(\sqrt{5}+1)y}{2}$

$\frac{x'y}{xy} \rightarrow \frac{x'y}{x'y} = \frac{\frac{(\sqrt{5}+1)y}{2} \cdot y}{\frac{y}{\sqrt{5}} \cdot y} \Rightarrow \frac{(\sqrt{5}+1)y^2}{2} \cdot \frac{\sqrt{5}}{y^2} = \frac{\sqrt{5}(\sqrt{5}+1)}{2} = \frac{5+\sqrt{5}}{2}$  ✓

(۲)

۲-  $\frac{\sqrt{x^2+y^2}}{x} = \frac{1+\sqrt{5}}{2}$   $\frac{x^2+y^2}{x^2} = \frac{1+\sqrt{5}}{2} \Rightarrow \frac{y^2}{x^2} = \frac{1+\sqrt{5}}{2} - 1 = \frac{1+\sqrt{5}-2}{2} = \frac{\sqrt{5}-1}{2}$

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

(۲)

۳-

$\sqrt{16a^2+4a} = 1-3a$   $16a^2+4a = 1-6a+9a^2 \Rightarrow 7a^2-14a+4=0$   $a = \frac{14 \pm \sqrt{196-112}}{14} = \frac{14 \pm \sqrt{84}}{14} = \frac{14 \pm 2\sqrt{21}}{14} = \frac{7 \pm \sqrt{21}}{7}$

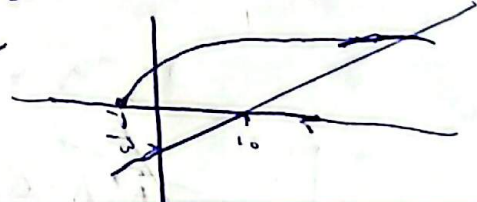
(۲)

$\frac{a+1}{a} = 1 + \frac{1}{a} \rightarrow \frac{1}{a} = \frac{1}{2} + \frac{1}{2} \rightarrow \frac{a}{2}$  ✓

$\frac{\sqrt{x+1}}{\sqrt{x-1}+3} + \frac{\sqrt{x+1}}{\sqrt{x-1}-3} = \frac{x-1-\sqrt{x-1}}{\sqrt{x-1}} \Rightarrow \frac{\sqrt{x-1}-x\sqrt{x-1}+1+\sqrt{x-1}+3\sqrt{x-1}}{x-10} = \sqrt{x-1}$

$\frac{2\sqrt{x-1}}{x-10} = \sqrt{x-1} \Rightarrow \sqrt{x+1} = \frac{x}{2} - 5$

←  $\frac{x}{2} - 5$  ←



(۲)

۴-

$\frac{\sqrt{2-x}-x}{-x-2} + \frac{\sqrt{2-x}+x}{-x-2} = \frac{1}{5} \sqrt{2-x} \Rightarrow \frac{2\sqrt{2-x}}{-x-2} = \frac{1}{5} \sqrt{2-x}$

$\Rightarrow -x-2=10 \Rightarrow x=-12$  ✓ جواب نیست

(۲)

$\frac{1}{x^2} + \frac{1}{(x^2-1)^2} = \frac{140}{9} \Rightarrow \frac{x^2-2x+1+x^4}{(x^2-x)^2} = \frac{140}{9} \Rightarrow \frac{x^4-2x^3+x^2-2x+1}{(x^2-x)^2} = \frac{140}{9}$

(۲)

$\frac{2(x^2-x+1)}{(x^2-x)^2} = \frac{140}{9} \Rightarrow \frac{2y+1}{y^2} = \frac{140}{9} \Rightarrow 140y^2-18y-9=0$

$(y-48)(y+30)=0 \Rightarrow y = \frac{3}{140} = \frac{3}{140}$

$x^2-x+\frac{3}{140}=0$   $x^2-x-\frac{3}{10}=0$   $1+1=2$  ✓

$$-x^2 + 2x - 1 \geq 0 \rightarrow x^2 - 2x + 1 \leq 0 \rightarrow (x-1)(x-1) \leq 0$$

$$\frac{2}{+1} - \frac{1}{-1} \rightarrow 2 \leq x \leq 4 \quad \text{II}$$

$$-x^2 + 4x^2 + 20x - 100 \geq 0 \rightarrow x^3 - 4x^2 - 20x + 100 \leq 0$$

$$x^3 - 20x - 4x^2 + 100 \leq 0 \rightarrow x(x^2 - 20) - 4(x^2 - 20) \leq 0$$

$$(x^2 - 20)(x - 4) \rightarrow \leq 0$$

$$|n| \Rightarrow x = 4 \quad \checkmark$$

جابانه اری در سکه دی آری

سین سادله این یو ا ب دارد

$$\frac{2}{-1} - \frac{1}{-1} \rightarrow 2 \leq x \leq 4$$

$$x \leq -2$$

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

$$\frac{-2}{-2x-1} \quad \frac{1}{2x+1}$$

سین یک یار با  $2x+1$  و یک یار  $-2x-1$   
آن را بر ممراری دهم تا نقاط به دست آید

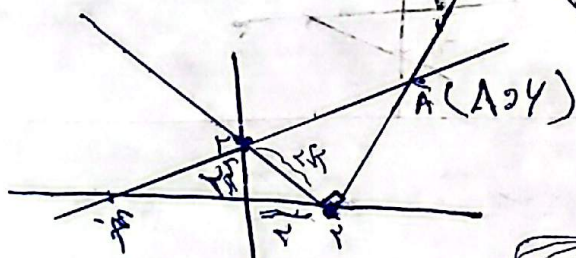
$$2x+1 = -\frac{1}{2}x + \frac{1}{2} \Rightarrow 4x+2 = -x+1 \Rightarrow \frac{5}{5} = x \Rightarrow x = 1$$

$$-2x-1 = -\frac{1}{2}x + \frac{1}{2} \Rightarrow -4x-2 = -x+1 \Rightarrow -5 = x \Rightarrow x = -5$$

$$AB = \sqrt{(2-(-5))^2 + (1-1)^2} = \sqrt{49+0} = 7 \quad \checkmark$$

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

$$x-2 = \frac{1}{2}x + 2 \Rightarrow x = 4 \quad y = 4$$



$$\sqrt{(4-2)^2 + (4-1)^2} = \sqrt{4+9} = \sqrt{13}$$

$$A = \sqrt{(4-2)^2 + (4-1)^2} \Rightarrow \sqrt{13}$$

$$\sqrt{13} = \sqrt{13} \quad \checkmark$$

$$x = 5 \quad x+9 = 14$$

$$\frac{1}{x} + \frac{1}{x+9} = \frac{1}{20} \Rightarrow \frac{2x+9}{x^2+9x} = \frac{1}{20} \Rightarrow 40x+180 = x^2+9x \Rightarrow x^2-31x-180=0$$

$$(x-36)(x+5) = 0 \Rightarrow x = 36 \quad \checkmark$$

زمان  $x = -5$   
منفر نسبت