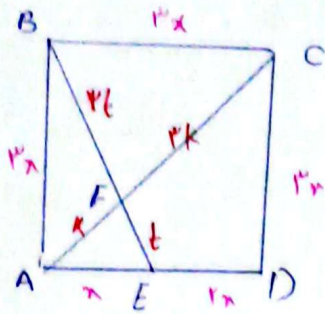
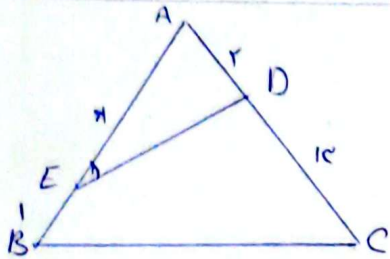


مسئله ۱۱ در هندسه



$$\frac{t}{k} = \frac{BE}{AC} = \frac{1/k}{1} = \frac{1}{k} \Rightarrow \frac{1}{k} = \frac{1}{k} \Rightarrow \frac{1}{k} = \frac{1}{k}$$

(1)



$$\triangle ADE \sim \triangle ABC$$

$$\hat{AED} = \hat{ACB}$$

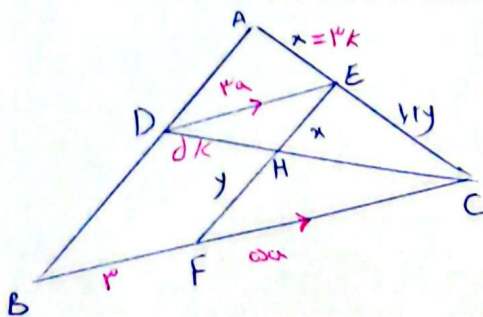
(1)

$$\frac{1}{x+1} = \frac{x}{1} \rightarrow x^2 + x = 1 \rightarrow x^2 + x - 1 = 0$$

$$(x-1)(x+1) = 0$$

$$x = 1$$

$$x = 1$$



$$BF = 1$$

$$y = 2x$$

$$BC = 8$$

$$BC = 8, 1/4$$

$$x = 1/4$$

$$y = 1/2$$

$$a = 1/4$$

$$\frac{1/a}{1+a} = \frac{1/k}{1+k} = \frac{1}{k}$$

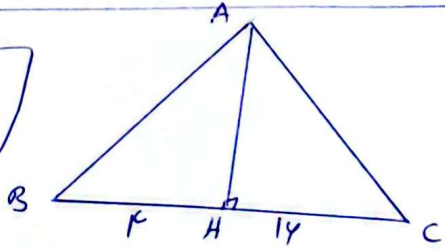
(1)

$$AC^2 = 1$$

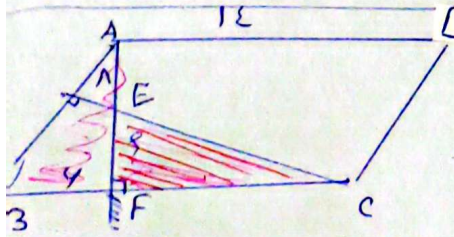
$$AB^2 = 1$$

$$\sqrt{\frac{AC^2}{AB^2}} = \frac{1}{1} = 1$$

$$\frac{AC}{AB} = 1$$



(1)

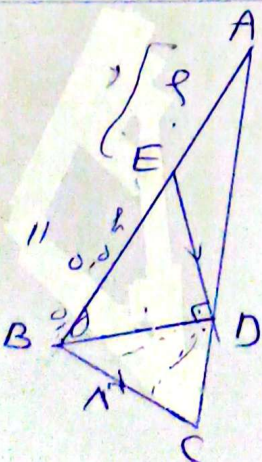


$$\triangle BAF \cong \triangle ECF \rightarrow \frac{BF}{EF} = \frac{AF}{CF}$$

$$\frac{y}{x} = \frac{x+1}{1} \rightarrow x(x+1) = 1$$

$$AF = 1 + 1 = 2$$

(1)



$$AE = 1$$

$$x^2 = 1 \Rightarrow x = 1$$

$$\frac{1/h}{AB} = \frac{D/h}{BC} \rightarrow \frac{y+1}{y+1} = \frac{1}{1} \Rightarrow y = 1$$

$$14y + 11 = 11y + 11 \rightarrow 3y = 0 \rightarrow y = 0$$

$$dy = 1 \rightarrow y = 1/4$$

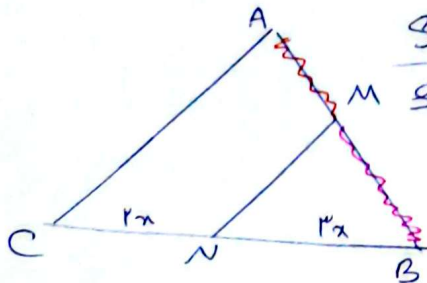
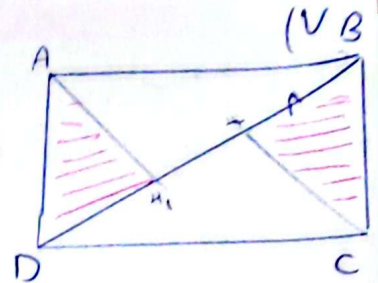
(1)

$$y' = x \cdot e^x \rightarrow y = \sqrt{e^x}$$

$$f'g : r \times \delta_{ABD} = \sqrt{e^x} \times \Sigma x = (\sqrt{e^x})'$$

$$f'g : \frac{(y) \times x}{r} = \frac{\sqrt{e^x} \cdot r}{r}$$

$$\frac{r \sqrt{e^x} \cdot r}{\sqrt{e^x} \cdot r} = 1$$

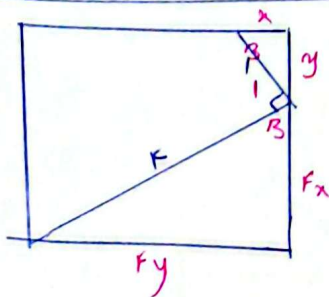


$$\frac{S_{BMN}}{S_{ABC}} = \frac{BM \times BN}{AB \times BC}$$

$$r_{BN} = r_{NC}$$

$$S_{ABC} = r^2 S_{BMN} \quad \frac{BM}{AM} = f$$

$$\Rightarrow \frac{BM}{AB} = \frac{a}{A} \rightarrow \frac{BM}{AM} = \frac{a}{F} = 1 \text{ (1)} \quad \frac{BM}{AB} \cdot \frac{r}{f} = \frac{1}{r}$$

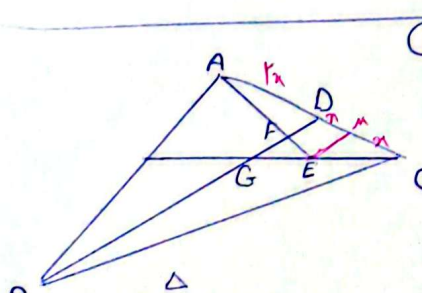


$$rx + y = ry \rightarrow x = \frac{y}{r}$$

$$\begin{cases} x^r + y^r = 1 \\ \frac{1}{r} y^r + y^r = 1 \rightarrow ry^r = 1 \end{cases}$$

$$14y^r = \frac{ry}{r} = 1 \cdot \frac{1}{r} \rightarrow \frac{1}{r} = 14$$

(9)



$$GE = EC \quad \frac{BD}{FD}$$

BD is the height of triangle ABC, E is the midpoint of AC, and G is the centroid of triangle ABC. AC is the base of triangle ABC.

$$\triangle GDC \cong EM \parallel GD \rightarrow \frac{EC}{EG} = \frac{CM}{DM} \rightarrow 1 = \frac{CM}{DM} \Rightarrow CM = DM$$

$$\triangle AEM \cong FD \parallel EM \rightarrow \frac{AD}{AM} = \frac{FD}{EM} \rightarrow \frac{r_x}{r_x} = \frac{FD}{EM} \Rightarrow EM = \frac{1}{r} FD$$

$$\triangle GDC \cong EM \parallel DG \rightarrow \frac{CM}{CD} = \frac{EM}{GD} \Rightarrow \frac{x}{r_x} = \frac{EM}{GD} \rightarrow GD = r EM \rightarrow GD = r \left(\frac{1}{r} FD \right)$$

$$\frac{1}{r} \cdot \frac{GD}{BD} = \frac{1}{r} \Rightarrow \frac{r FD}{BD} = \frac{1}{r} \Rightarrow \frac{BD}{FD} = 9$$