

بارها جملات تکراری - یاد هم بپرس - تحلیل

1) $AB: y = -\frac{1}{r}x + r \Rightarrow d = \frac{1}{r}x + b \Rightarrow \frac{1}{r}x + b = \frac{1}{r}x + r \Rightarrow b = r$

$d: y = \frac{1}{r}x + \frac{r}{r}$

$M \left| \begin{matrix} x_1 + x_2 \\ y_1 + y_2 \end{matrix} \right|$

2) $BC = \sqrt{r^2 + r^2} = \textcircled{2}$

$BC: y = \frac{r}{r}x + \frac{r}{r} \Rightarrow ry + rx - d = 0$

$AH = \frac{|r+r-d|}{\sqrt{r^2+r^2}} = \frac{1 \cdot 0}{d} = \textcircled{1}$

$BC - AH = r$

3)

$\begin{cases} ry - ax = r \\ ry - x = r \end{cases}$

$\frac{r}{r} = \frac{-a}{-1} \Rightarrow a = r$

$\Rightarrow \begin{cases} ry - rx = r \\ ry - x = r \end{cases} \xrightarrow{\frac{r}{r}} \begin{cases} y - x = 1 \\ y - \frac{x}{r} = 1 \end{cases}$

$rr = \frac{|1r-1|}{\sqrt{r^2+r^2}} = \frac{1r}{\sqrt{2}} \Rightarrow r = \frac{r}{\sqrt{2}} \Rightarrow s = \pi r^2 = \frac{9}{d} \pi$

4)

$MH = \frac{|AC^2 - BC^2|}{2AB}$

$AC = \sqrt{r^2 + r^2} = r\sqrt{2}$

$BC = \sqrt{d^2 + r^2} = \sqrt{r^2}$

$AB = \sqrt{r^2 + r^2} = r\sqrt{2}$

$\Rightarrow MH = \frac{|r^2 - r^2|}{r\sqrt{2}} = \frac{r}{r\sqrt{2}} = \frac{\sqrt{2}}{2}$

5)

$y_1 = \left(\frac{m+1}{r-m-r} \right) x + \frac{1}{r-m-r}$

$y_2 = \left(\frac{r-m-r}{m-d} \right) x - \frac{r}{m-d}$

a_r

$a_1 \times a_r = -1 \Rightarrow \frac{m+1}{r-m-r} \times \frac{r-m-r}{m-d} = -1$

$-rm^2 + 1rm - r = rm^2 + m - r$

$\Rightarrow dm^2 - 1rm + 1r = 0$

$0 = b^2 - 4ac = 1^2 - 4 \cdot 1 \cdot 0 = 1$

برای لیست مقدار
حقیقی m در خط
بر هم می خورد

6)

$AB = AC \Rightarrow A(1,1)$

$\begin{cases} rx + ry = 1 \\ rx - y = 1 \end{cases} \Rightarrow \frac{dy}{dx} = 1 \Rightarrow y = x$

$AC = BC \Rightarrow C(\frac{d}{r}, \frac{r}{r})$

$\begin{cases} rx - y = 1 \\ rx + y = r \end{cases} \Rightarrow \frac{dx}{dy} = 1 \Rightarrow x = y$

$\Rightarrow x = \frac{d}{r}, y = \frac{r}{r}$

$AB = BC \Rightarrow B(0,0-1)$

$\begin{cases} x + ry = r \\ x + y = r \end{cases} \Rightarrow y = -1 \Rightarrow x = d$

$BC: y = -x + r \Rightarrow y + x - r = 0$

$M(\frac{x_1+x_2}{2}, \frac{y_1+y_2}{2})$

$\Rightarrow M(\frac{1}{2}, \frac{r}{2})$

$\Rightarrow AM = \sqrt{(\frac{r}{2})^2 + (\frac{1}{2})^2} = \frac{\sqrt{d^2+1}}{2}$

$\Rightarrow AH = \frac{|1+1-r|}{\sqrt{1^2+1^2}} = \frac{r}{\sqrt{2}} = \sqrt{r}$

$\frac{AM}{AH} = \frac{\frac{\sqrt{d^2+1}}{2}}{\frac{r}{\sqrt{2}}} = \frac{\sqrt{2}}{r} = \frac{d}{r}$

7) $d: y = -\frac{1}{r}x + b$

$\Rightarrow \frac{|0+0-b|}{\sqrt{1^2+(\frac{1}{r})^2}} = \frac{|b|}{\frac{\sqrt{2}}{r}} = \sqrt{2} \Rightarrow |b| = d \Rightarrow b = \pm d$

$A(\alpha, 0) \xrightarrow{d} 0 = -\frac{\alpha}{r} + b \Rightarrow \alpha = rb$

$B(0, \beta) \xrightarrow{d} \beta = 0 + b \Rightarrow \beta = b$

$AB = \sqrt{\alpha^2 + \beta^2} = \sqrt{d^2 + d^2} = \sqrt{2} |b|$

$\Rightarrow AB = d\sqrt{2}$

پارامترها جبهه قسری - یا زنده بستر A - تکلیف اول

8) $d_1: y = (1-m)x + 2 \xrightarrow{y=0} (1-m)x = -2 \Rightarrow x = \frac{-2}{1-m} \quad (I)$
 $d_2: y = \frac{2}{m}x + 2 \xrightarrow{y=0} \frac{2}{m}x = -2 \Rightarrow x = -\frac{m}{2} \quad (II)$
 $\Rightarrow \frac{-2}{1-m} = -\frac{m}{2} \Rightarrow \frac{2}{m-1} + \frac{m}{2} = 0 \Rightarrow \frac{2+m^2-m-2}{2m-2} = 0 \Rightarrow \frac{m^2-m}{2m-2} = 0$

$d_1 = d_2 \Rightarrow (1-m)x + 2 = \frac{2}{m}x + 2$
 $\Rightarrow (1-m-\frac{2}{m})x = 0 \Rightarrow x=0 \Rightarrow y=2$
 اندازه ی ارتفاع و در بر تاده = 2
 $\frac{|\frac{m^2-m}{2m-2}| \times 1}{1} = \frac{d}{2}$

(III): $1-m \neq \frac{2}{m} \rightarrow$ زیرا در غیر این صورت دو خط d_1 و d_2 بر هم منطبق می شوند

$\Rightarrow \frac{|\frac{m^2-m+2}{2m-2}|}{1} = \frac{d}{2} \Rightarrow \frac{m^2-m+2}{m-1} = d$
 $\Rightarrow \begin{cases} \frac{m^2-m+2}{m-1} = d \Rightarrow m^2-m+2 = dm-d \Rightarrow m^2-2m+2+d = 0 \\ \frac{m^2-m+2}{m-1} = -d \Rightarrow m^2-m+2 = -dm+d \Rightarrow m^2+m-1 = 0 \end{cases}$
 $\Rightarrow (m-2)^2 = 0 \Rightarrow m=2$
 $\Rightarrow m^2+m-1 = 0 \Rightarrow m = \frac{-1 \pm \sqrt{5}}{2}$

(IV), (V)
 $\Rightarrow (3) \times (-1) = -3$

چون (III) برقرار است قابل قبول است
 چون (IV) برقرار است قابل قبول است
 چون (V) برقرار است قابل قبول است
 است پس هر دو مقدار m قابل قبول است

9) $d: y = 2x - 3$

فرم نقطه A نسبت $\frac{y_A - y_H}{x_A - x_H} = \frac{2}{1}$
 $A' \begin{bmatrix} x_H - x_A \\ y_H - y_A \end{bmatrix} = \begin{bmatrix} 1 \\ -1 \end{bmatrix}$
 $\Rightarrow \begin{cases} x_H - x_A = 1 \\ y_H - y_A = -1 \end{cases} \Rightarrow \begin{cases} x_H = x_A + 1 \\ y_H = y_A - 1 \end{cases}$
 $\Rightarrow d: y = 2x - 3$

(10) $AH: y = -x + b \Rightarrow b = -1 + b \Rightarrow b = 3 \Rightarrow AH: y = -x + 3$
 $d: y = x + 2$
 $A' \begin{bmatrix} x_H - x_A \\ y_H - y_A \end{bmatrix} = \begin{bmatrix} -1 \\ 1 \end{bmatrix} \Rightarrow \begin{cases} x_H - x_A = -1 \\ y_H - y_A = 1 \end{cases} \Rightarrow \begin{cases} x_H = x_A - 1 \\ y_H = y_A + 1 \end{cases}$
 $\Rightarrow \begin{cases} a = -1 \\ b = 1 \end{cases} \Rightarrow 2b - a = 2 + 1 = 3$