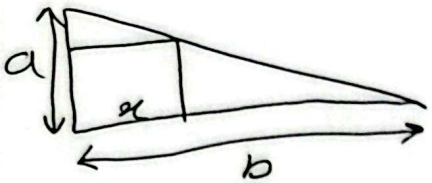
۶

$$x = \frac{ab}{a+b} \Rightarrow x = \frac{6 \times \frac{3}{4}}{\frac{3}{4} + \frac{24}{4}} = \frac{\frac{18}{4}}{\frac{27}{4}} = \frac{18}{27}$$



$= \frac{2}{3}$ ضلع مربع $\Rightarrow S = \left(\frac{3}{4}\right)^2 = \frac{4}{9}$

۷

$y = \frac{x + a - 1}{a}$ طول این $\quad y = ax + 1 \quad ax = \frac{x}{a} \Rightarrow a = 1$

$y = x$ فاصله ۱ واحد $y = x + 1$

$a^2 = 1^2 + x^2 \Rightarrow x = 3$

$S = 2 \times 1 = 2$

۸

$$AH = \frac{|4 - 0 - 1|}{\sqrt{1+9}} = \frac{3}{\sqrt{10}}$$

$$HB^2 = 9 - \frac{9}{10} = \frac{81}{10} \quad HB = \frac{9}{\sqrt{10}}$$

$$S = \frac{1}{2} \times \frac{3\sqrt{3}}{\sqrt{10}} \times \frac{9}{\sqrt{10}} = \frac{27}{20} = 1,35$$

۹

$$a = \frac{a-b}{-\frac{1}{2} + \frac{1}{3}} = \frac{a-b}{-\frac{3}{6} + \frac{2}{6}} = \frac{a-b}{-\frac{1}{6}} = 6a - 6b = -1$$

$$\Rightarrow a - b = \frac{-\sqrt{3}}{6} \Rightarrow D = \sqrt{(a-b)^2 + \left(-\frac{1}{2} + \frac{1}{3}\right)^2}$$

$$= \sqrt{\frac{3}{36} + \frac{1}{36}} = \sqrt{\frac{4}{36}} = \frac{2}{3}$$

قطر مربع $= \sqrt{2}a = 3\sqrt{2}$

۱۰

$a = \frac{-4-0}{-3-0} = \frac{4}{3}$ $\quad y = \frac{4}{3}x$ $\quad d = \sqrt{9+16} = 5$

شیب خط عمود بر خط ۷ در ناحیه ۲ $\frac{3}{4}$ است و در نقطه $(-3, 4)$

شیب خط عمود بر آن در ناحیه ۲ که فاصله آن از مبدا مختصات ۵ است $y = -\frac{3}{4}x$

$y = \frac{4}{3}x$

مساحت دایره است

$y_A + y_C = y_B + y_D$

$x_A + x_C = x_B + x_D$

$x_A + 0 = -3 + 4$

$y_A + 0 = -7$

$\Rightarrow (1, -7)$

$1 \times (-7) = -7$

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۱

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

$B = -2 + b = m$

$A = 1 + b = k$

$d = \sqrt{(2-4)^2 + \left(\frac{m-k}{2}\right)^2} = d = \sqrt{20} = 2\sqrt{5}$

$S = d^2 = 20$

$x = -x - 5$

$2x = 5 \rightarrow x = -\frac{5}{2}$

$mm' = -1 \Rightarrow \frac{3}{-2} * \frac{y}{\frac{3}{2}} = -1$

$\Rightarrow y = 2$

$CD = \sqrt{16+9} = 5$

$AD = \sqrt{\frac{9}{4} + \frac{16}{4}} = \frac{5}{2}$

محیط $= \frac{5}{2} + \frac{5}{2} + 5 + 5 = 10$

۳

$2mx + (m^2-1)y = 3 \rightarrow (m^2-1)y = -2mx + 3 \rightarrow y = \frac{-2m}{(m^2-1)}x + \frac{3}{m^2-1}$

$\frac{-2m}{m^2-1} = \sqrt{2} \rightarrow -2m = \sqrt{2}m^2 - \sqrt{2} \Rightarrow m^2 + \frac{2}{\sqrt{2}}m - 1 = 0$

$m = \frac{\frac{-2}{\sqrt{2}} \pm \frac{4}{\sqrt{2}}}{2} \begin{cases} \frac{1}{\sqrt{2}} \\ -\sqrt{2} \end{cases}$ اختلاف $\rightarrow \frac{1+2}{\sqrt{2}} = \frac{3}{\sqrt{2}} = \frac{3\sqrt{2}}{2}$

۴

$a_{BC} = \frac{\Delta y}{\Delta x} = \frac{2-11}{2-7} = \frac{-9}{-4} = 2 \Rightarrow a_{AH} = -\frac{1}{2}$

$AH = -\frac{1}{2}x + \frac{19}{2}$ $\quad BC = 2x - 2$

$d = \frac{|2-2-9|}{\sqrt{1+4}} = \frac{10}{\sqrt{5}} = \frac{10\sqrt{5}}{5} = 2\sqrt{5}$

۵

$a_{AC} = \frac{3}{4}$ $\quad AC = y = \frac{3}{4}x + \frac{17}{4}$

$-2x + 7 = \frac{7}{2}x - \frac{19}{2} \Rightarrow -\frac{11}{2}x = \frac{-33}{2} \Rightarrow x = 3$ ← نقطه برخورد AB و BC

$y = 3 \rightarrow B = (3,3)$

$BH = \frac{\left|\frac{3}{2} + \frac{17}{4} - 3\right|}{\sqrt{\frac{49}{16} + \frac{289}{16}}} = \frac{\frac{11}{4}}{\frac{\sqrt{338}}{4}} = \frac{11}{\sqrt{338}}$