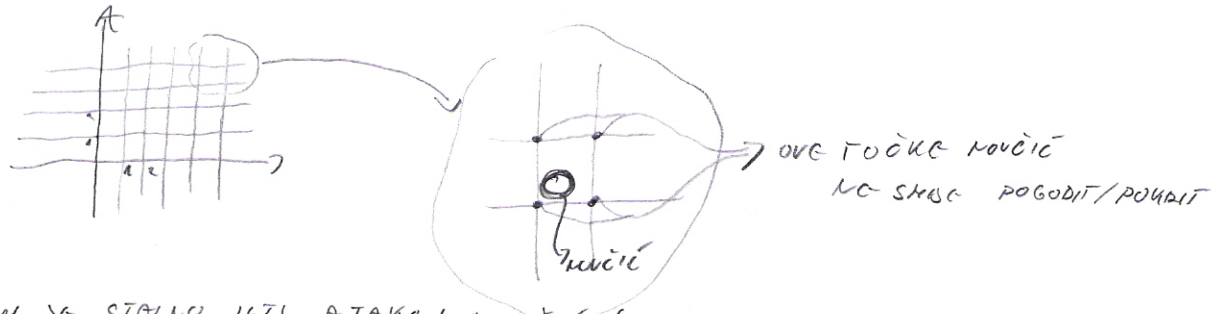
35.

- NISAM 100% SIGURAN DAL OVO OVAKO IDE, ALI EVO DA SE NAĐE
- IMAMO KOORDINATNI SUSTAV (RAVNINU)
- NOVČIĆ PROMJERA $\frac{1}{2}$ JEDINICA KOORDINATNOG SUSTAVA TJ. POLUMJERA $\frac{1}{4}$



- SUSTAV NAM JE STALNO ISTI, A TAKO I NOVČIĆ (NEMA PROMJENE POVRŠINE)

$m(\Omega) = 1 \cdot 1 = 1$

$m(A) = R^2\pi = \left(\frac{1}{4}\right)^2\pi = \frac{1}{16}\pi = \frac{\pi}{16}$

$P(A) = \frac{m(A)}{m(\Omega)} = \frac{\pi}{16}$

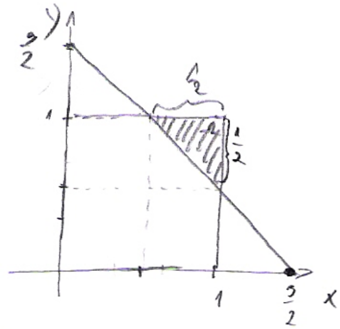
36.

- INTERVAL $[0,1]$

• $x + y > \frac{3}{2}$

$\Downarrow$

$y = \frac{3}{2} - x$



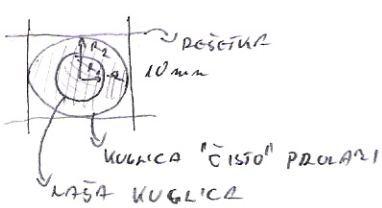
$m(\Omega) = 1 \cdot 1 = 1$

$m(A) = \frac{\frac{1}{2} \cdot \frac{1}{2}}{2} = \frac{\frac{1}{4}}{\frac{2}{1}} = \frac{1}{8}$

$P(A) = \frac{m(A)}{m(\Omega)} = \frac{1}{8}$

37.

- IMAMO REŠETKE 10 mm x 10 mm I KUGLICU PROMJERA 5 mm
- KOLIKA JE ŠANSA DA KUGLICA "ČISTO" PROĐE



$R_1 = 2,5$ mm

$R_2 = 5$ mm

$m(\Omega) = R_2^2\pi = 25\pi\ mm^2$

$m(A) = R_1^2\pi = 6,25\pi\ mm^2$

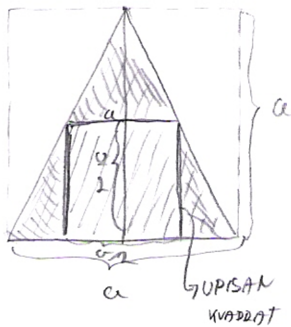
$P(A) = \frac{m(A)}{m(\Omega)} = \frac{6,25\cancel{\pi}}{25\cancel{\pi}} = 0,25$

34.

- JEDNAKOKRAČAN TROKUT
  - OSNOVICA a
  - VISINA a
- UPISAN KVADRAT

- KOLIKA JE VJEROJATNOST DA NA SREĆU ODABRANA TOČKA U TROKUTU NE LEŽI UNUTAR TOG KVADRATA

- NACRTAJTE TAJ JEDNAKOKRAČAN TROKUT



POVRŠINA TROKUTA: $\frac{a \cdot a}{2} = \frac{a^2}{2}$

POVRŠINA KVADRATA: $\frac{a}{2} \cdot \frac{a}{2} = \frac{a^2}{4}$

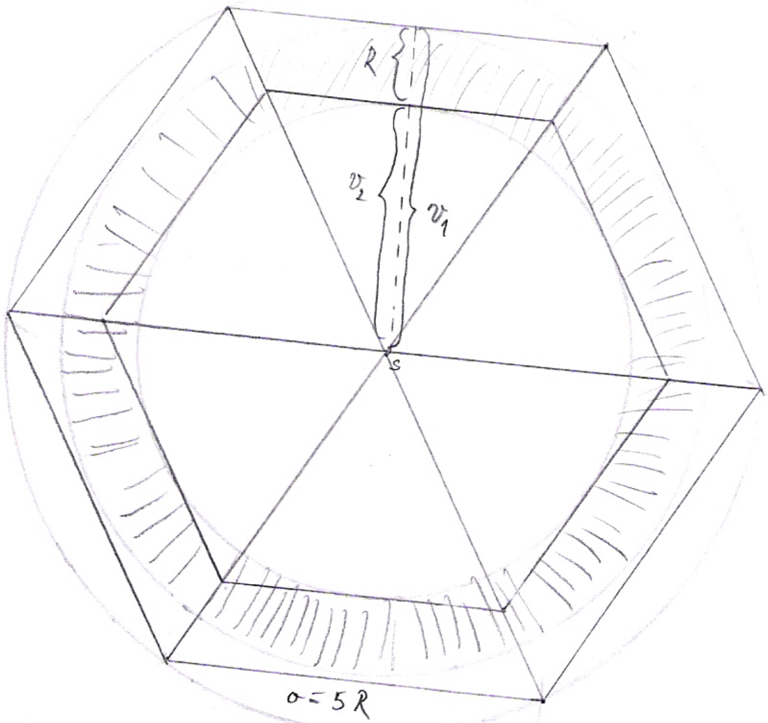
$$p = \frac{\frac{\cancel{a^2}}{4_2}}{\frac{\cancel{a^2}}{\cancel{2}}} = \frac{1}{2}$$

38 - PRAVILAN 6-EROKUT STRANICE $a = 5R$

- SREDIŠTE PADA UNUTAR ŠESTEROKUTA

- NACRTASMO 6-EROKUT SA STRANICOM $a = 5$ ($R = 1cm$)

- $v_2 = v_1 - R$ PIŠEMO ZATO ŠTO U ZADATKU PIŠE DA SREDINA MORA BITI UNUTAR 6-EROKUTA



- JA ĆU RAČUNAT OMJER POVRŠINA KRUGA

$a = 5R$

$$v_1 = \sqrt{a^2 - \frac{a^2}{4}} = \sqrt{25R^2 - \frac{25R^2}{4}} = \sqrt{\frac{75R^2}{4}} = \frac{5R}{2}\sqrt{3}$$

$$v_2 = v_1 - R = \frac{5R}{2}\sqrt{3} - R = \frac{5R\sqrt{3} - 2R}{2} = \frac{R}{2}(5\sqrt{3} - 2)$$

$$P_1 = v_1^2 \pi = \frac{25}{4} R^2 \cdot 3 \cdot \pi$$

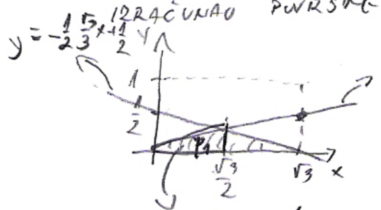
$$P_2 = v_2^2 \pi = \frac{R^2}{4}(75 - 20\sqrt{3} + 4)\pi$$

$$P = \frac{P_2}{P_1} = \frac{\cancel{\frac{R^2}{4}}(75 - 20\sqrt{3} + 4)\cancel{\pi}}{\cancel{\frac{25}{4}R^2} \cdot 3 \cdot \cancel{\pi}} = \frac{75 - 20\sqrt{3} + 4}{75} = 0,5915$$

39 NAPOMENA! – NE ZNAM DA LI SAM KRIVO RADIO/RAZUMIO ZADATAK, ALI DOBIO SAM "NEKO" RJEŠENJE (RAZLIKUJE SE OD ONOGA U KNJIZI)

– JA SAM TO STAVLJAO U KOORDINATNI SUSTAV I IZRAČUNAVAO JEDNADŽBE PRAVACA DA BIH IZRAČUNAO POVRŠINE.

$$\boxed{y - y_1 = \frac{y_2 - y_1}{x_2 - x_1}(x - x_1)}$$



$T_1(0,0)$, $T_2(\sqrt{3}, \frac{1}{2})$ $\Rightarrow y = \frac{1}{2}\frac{\sqrt{3}}{3}x$

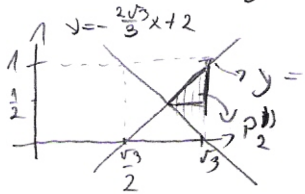
$T_3(\sqrt{3}, 0)$, $T_4(0, \frac{1}{2})$ $\Rightarrow y = -\frac{1}{2}\frac{\sqrt{3}}{3}x + \frac{1}{2}$

IMAMO 4 TAKVE POVRŠINE

$\boxed{P' = 2P_1'}$; $\boxed{P_1' = 2P_1}$

$$P_1' = 2\cdot\int_0^{\frac{\sqrt{3}}{2}} dx \int_0^{\frac{1}{2}\frac{\sqrt{3}}{3}x} dy = 2\int_0^{\frac{\sqrt{3}}{2}} \frac{1}{2}\frac{\sqrt{3}}{3}x\,dx = 2\,\frac{1}{2}\,\frac{\sqrt{3}}{3}\cdot\frac{1}{2}\,x^2\Big|_0^{\frac{\sqrt{3}}{2}} = \cancel{2}\,\frac{1}{\cancel{2}}\,\frac{\sqrt{3}}{3}\,\frac{1}{2}\,\frac{3}{4} = \frac{\sqrt{3}}{8}$$

$$P' = 2P_1' = 2\,\frac{\sqrt{3}}{8} = \frac{\sqrt{3}}{4}$$



$T_5(\frac{\sqrt{3}}{2}, 0)$, $T_6(\sqrt{3}, 1)$ $\; y = \frac{2\sqrt{3}}{3}x - 1 \Rightarrow x = 1 + \frac{\sqrt{3}}{2}y$

$T_7(\sqrt{3}, 0)$, $T_8(\frac{\sqrt{3}}{2}, 1)$ $\; y = -\frac{2\sqrt{3}}{3}x + 2$

$P'' = 2P_2''$; $\boxed{P_2'' = 2P_1}$

$$P_2'' = 2\cdot\int_{\frac{1}{2}}^{1} dy \int_{1+\frac{\sqrt{3}}{2}y}^{\sqrt{3}} dx = 2\int_{\frac{1}{2}}^{1}\left(\sqrt{3} - 1 - \frac{\sqrt{3}}{2}y\right)dy = \cancel{2}\,\frac{5\sqrt{3}-8}{\cancel{16}\,8} = \frac{5\sqrt{3}-8}{8}$$

$$P'' = 2P_2'' = \cancel{2}\,\frac{5\sqrt{3}-8}{\cancel{8}\,4} = \frac{5\sqrt{3}-8}{4}$$

$$P = P' + P'' = \frac{\sqrt{3}}{4} + \frac{5\sqrt{3}-8}{4} = \frac{6\sqrt{3}-8}{4}$$

$$P_{\square} = 1\cdot\sqrt{3} = \sqrt{3}$$

$$p = \frac{P}{P_{\square}} = \frac{\frac{6\sqrt{3}-8}{4}}{\frac{\sqrt{3}}{1}} = \frac{6\sqrt{3}-8}{4\sqrt{3}} = 0{,}3453$$

43 - INTERVAL [0,1]

$x \cdot y > \frac{1}{2} \rightarrow y = \frac{1}{2x}$

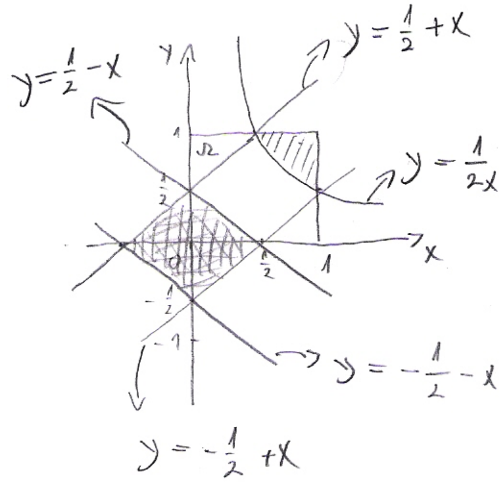
$|x-y| < \frac{1}{2}$

$x - y < \frac{1}{2} \rightarrow \boxed{y > -\frac{1}{2} + x}$

$-x - y < \frac{1}{2} \rightarrow \boxed{y > -\frac{1}{2} - x}$

$x + y < \frac{1}{2} \rightarrow \boxed{y < \frac{1}{2} - x}$

$-x + y < \frac{1}{2} \rightarrow \boxed{y < \frac{1}{2} + x}$



- IZ PRILOŽENOG SE VIDI DA NEMA PREKLAPANJA POVRŠINA PA SE ZBOG TOGA VJEROJATNOST 0

44. - IMAMO 2 VLAKA PO 200 m DUGAČKIH
- IDU BRZINOM 75 km/h
- IMAJU 30 min DA PROĐU SJECIŠTE PRUGA
- PRETVORIMO SI SVE U 'km' i 'h'

$\boxed{v_1 = \frac{d}{t}} = \frac{0,2}{0,5}$ → MORAMO PAZITI JER IMAMO 2 VLAKA (ZNAČI BIT ĆE PUTA 2)

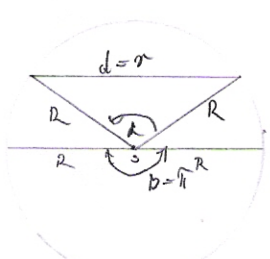
→ PISAO SAM KAO BRZINU JER ĆE NAM SE TAKO POKRATITI MJERNE JEDINICE I OSTATI ČISTI POSTOTAK TJ. VJEROJATNOST

$v = 75$ km/h

$$p = \frac{2 v_1}{v} = \frac{2 \cdot \frac{0,2}{0,5} \cancel{\frac{km}{h}}}{75 \cancel{\frac{km}{h}}} = 0,010\dot{6} \approx 0,011$$

45. - IMAMO KRUŽNICU POLUMJERA R
- BIRAMO 2 TOČKE
- TRAŽI SE VJEROJATNOST DA ĆE, KADA SPOJIMO TE DVIJE TOČKE, BITI $r < 2R$
- TU ĆEMO USPOREĐIVATI KUTEVE JER SE RADI O POVRŠINAMA KRUŽNIH ODSJEČAKA

$d = r$



$$d = 2R \sin \frac{\alpha}{2}$$

$$r = 2R \sin \frac{\alpha}{2}$$

$$\sin \frac{\alpha}{2} = \frac{r}{2R}$$

$$\frac{\alpha}{2} = \arcsin \frac{r}{2R} \quad / \cdot 2$$

$$\alpha = 2 \arcsin \frac{r}{2R} \quad ; \quad b = \pi$$

$$p = \frac{\alpha}{b} = \frac{2 \arcsin \frac{r}{2R}}{\pi} = \frac{2}{\pi} \arcsin \frac{r}{2R}$$

46 NAPOMENA: OVAJ ZADATAK JE RAĐEN PO ZADATKU 1.13. STR. 56.

- IMAMO ŠTAP DUŽINE L KOJEG DIJELIMO NA 3 DIJELA

$b = \frac{1}{4}L;\ a = L$

$\boxed{b < \frac{a}{3}} \to \boxed{a > 3b}$

$G = \{0<x<b,\ 0<y<b,\ a-b < x+y < a\}$

$m(\Omega) = a \cdot a = a^2 = L^2$

UVJET: $b < \frac{a}{2}$

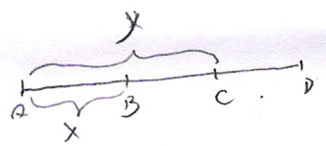
$\frac{1}{4}L < \frac{L}{2}$

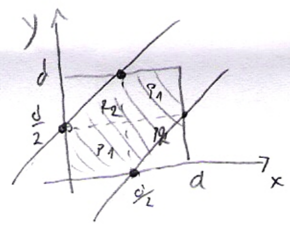
$\frac{1}{4} < \frac{1}{2}$ ✓

$$P(G) = \frac{m(G)}{m(\Omega)} = \frac{(3b-a)^2}{a^2} = \frac{(3\cdot\frac{1}{4}L - L)^2}{L^2} = \frac{(-\frac{1}{4}L)^2}{L^2} =$$

$$= \frac{\frac{1}{16}\cancel{L^2}}{\cancel{L^2}} = \frac{1}{16}$$

47. NAPOMENA: RJEŠENJE OVOG ZADATKA MI SE ~~NE~~ POKLAPA SA ONIM U KNJIZI
OVAKO SAM JA RADIO





$P_2 = \frac{P_1}{2}$

I. $y - x < \frac{d}{2}$

$y < \frac{d}{2} + x$

$m(P) = 2P_1 + 2P_2 = 2P_1 + 2\frac{P_1}{2} = 3P_1 = \frac{3d^2}{4}$

$P_1 = \frac{d}{2} \cdot \frac{d}{2} = \frac{d^2}{4}$

II. $x - y < \frac{d}{2}$

$-y < \frac{d}{2} - x$

$y > x - \frac{d}{2}$

$m(\Omega) = d \cdot d = d^2$

$$P(d(B,C)) = \frac{m(P)}{m(\Omega)} = \frac{\frac{3}{4}d^2}{d^2} = \frac{3}{4}$$