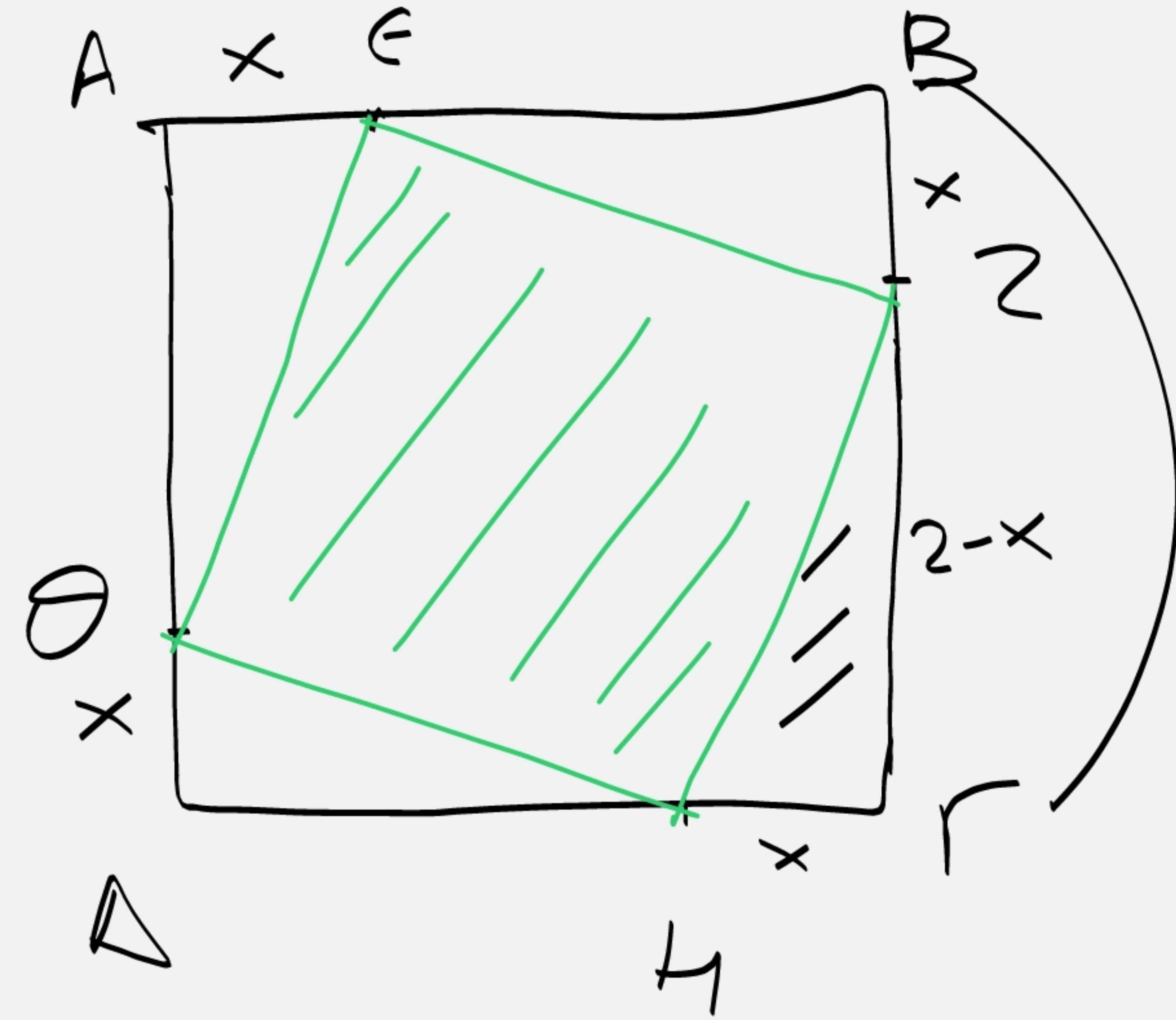


agw. 9 / Σ 150



$$(E_{ZH\Theta}) = ZH^2 = 2x^2 - 4x + 4$$

$$E(x) = 2x^2 - 4x + 4$$

$$x \in (0, 2)$$

$$E'(x) = 4x - 4$$

$$E'(x) = 0$$

$$x = 1$$

$E'(x)$	-	0	+
$E(x)$	↘		↗
		0.6	

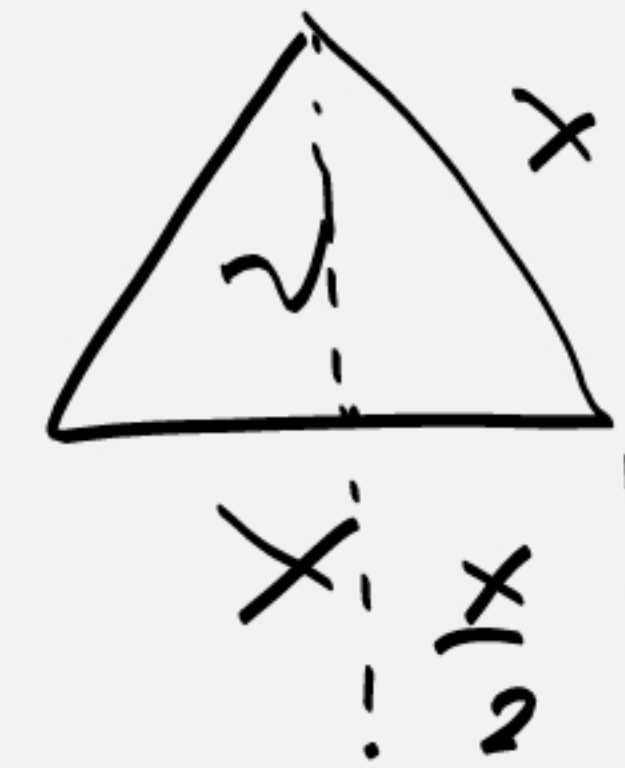
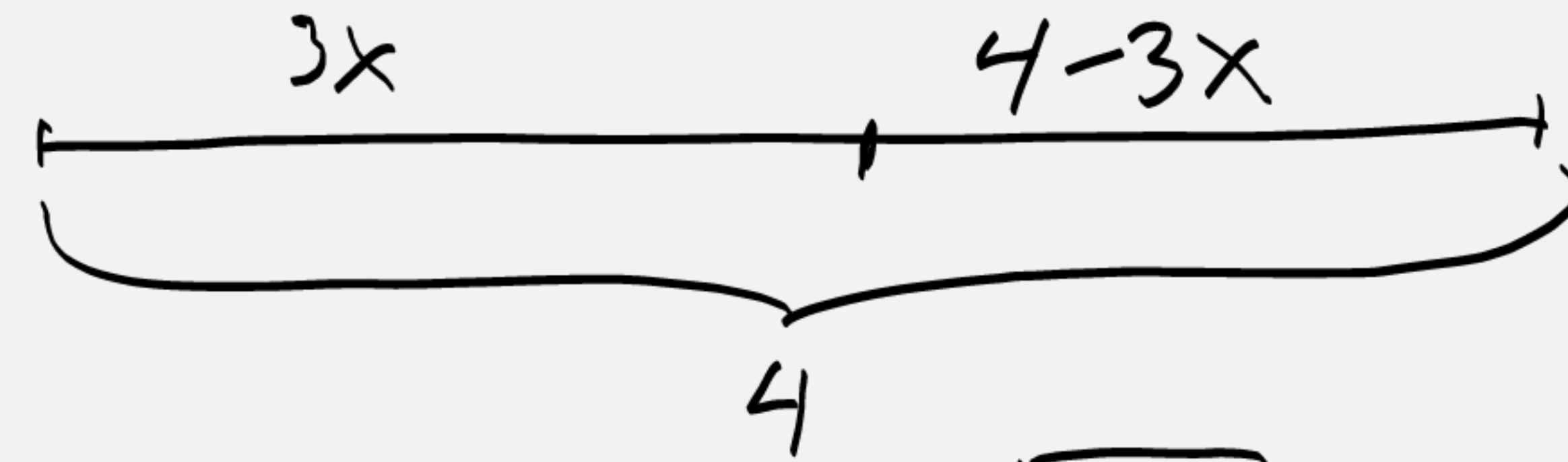
$$a = 2$$

$$ZH^2 = ZH^2 = ZH^2 + H^2 =$$

$$ZH^2 = (2-x)^2 + x^2$$

$$ZH = \sqrt{4 - 4x + 2x^2}$$

agw. 7 / Σ 152



$$y = \frac{4-3x}{4} = 1 - \frac{3}{4}x$$

$$E_{\text{Zer}} = \left(1 - \frac{3}{4}x\right)^2$$

$$v^2 = x^2 - \left(\frac{x}{2}\right)^2 = x^2 - \frac{x^2}{4} = \frac{3x^2}{4}$$

$$v = \frac{\sqrt{3}x}{2}$$

$$E_{\text{Wip}} = \frac{b \cdot v}{2} = \frac{x \cdot \frac{\sqrt{3}x}{2}}{2} = \frac{\sqrt{3}x^2}{4}$$

$$ii) E(x) = E_{\text{Zer}} + E_{\text{Wip}} = \left(1 - \frac{3}{4}x\right)^2 + \frac{\sqrt{3}x^2}{4}$$

Θέμα Γ / 2018

Πανελλήνιος

$$4x = 4$$

$$x = 1$$

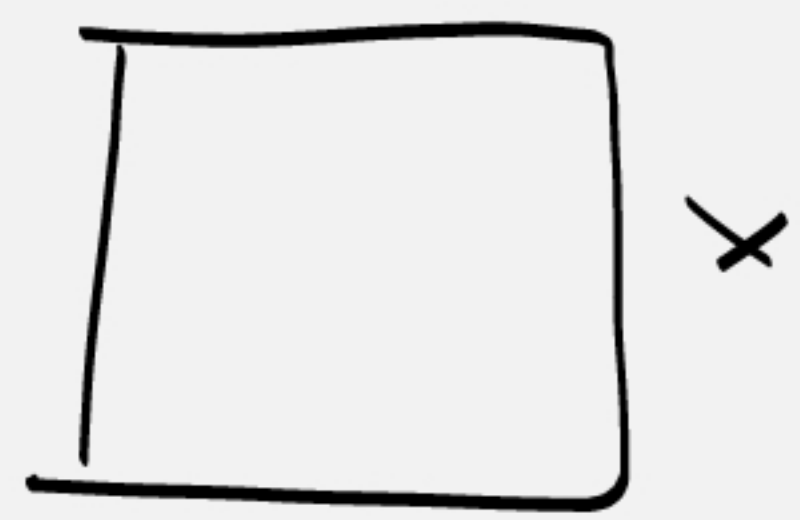
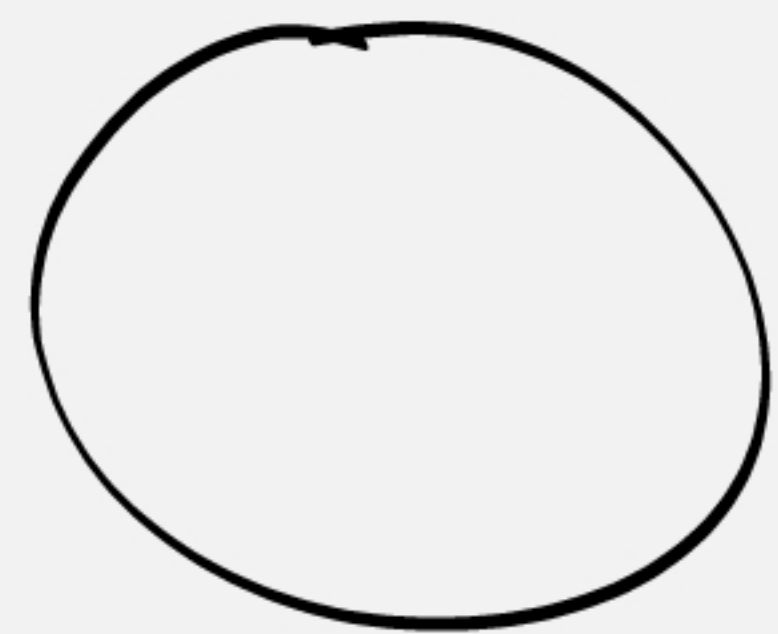
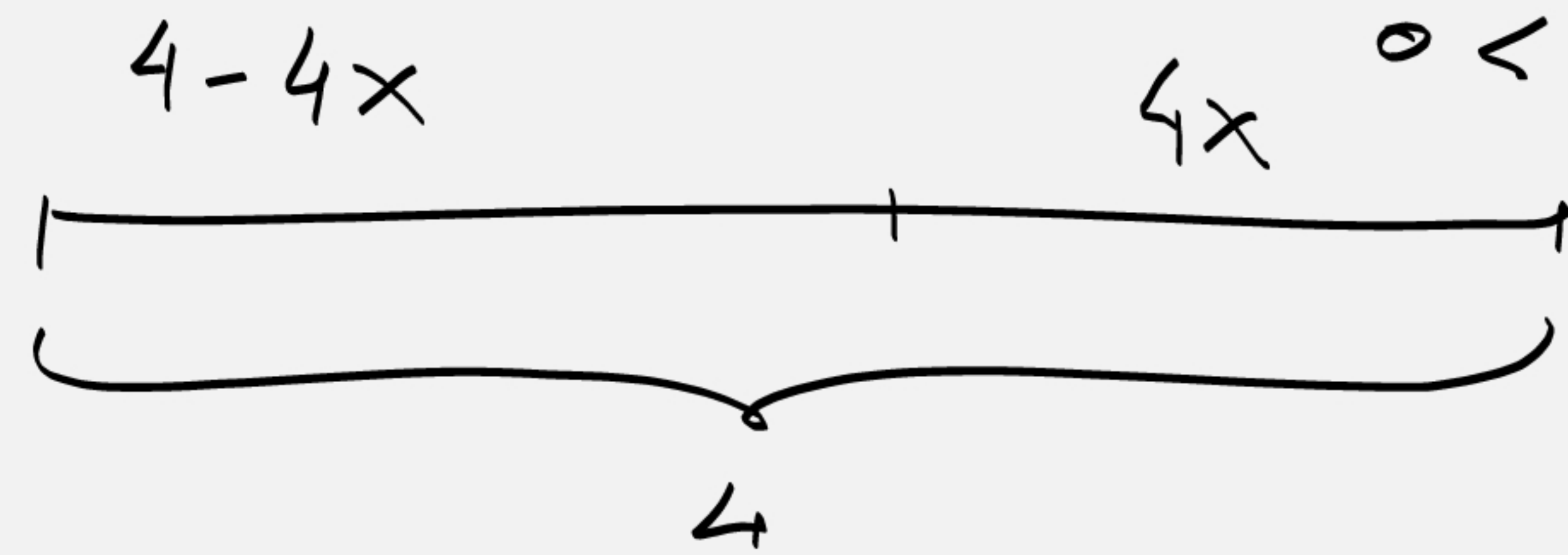
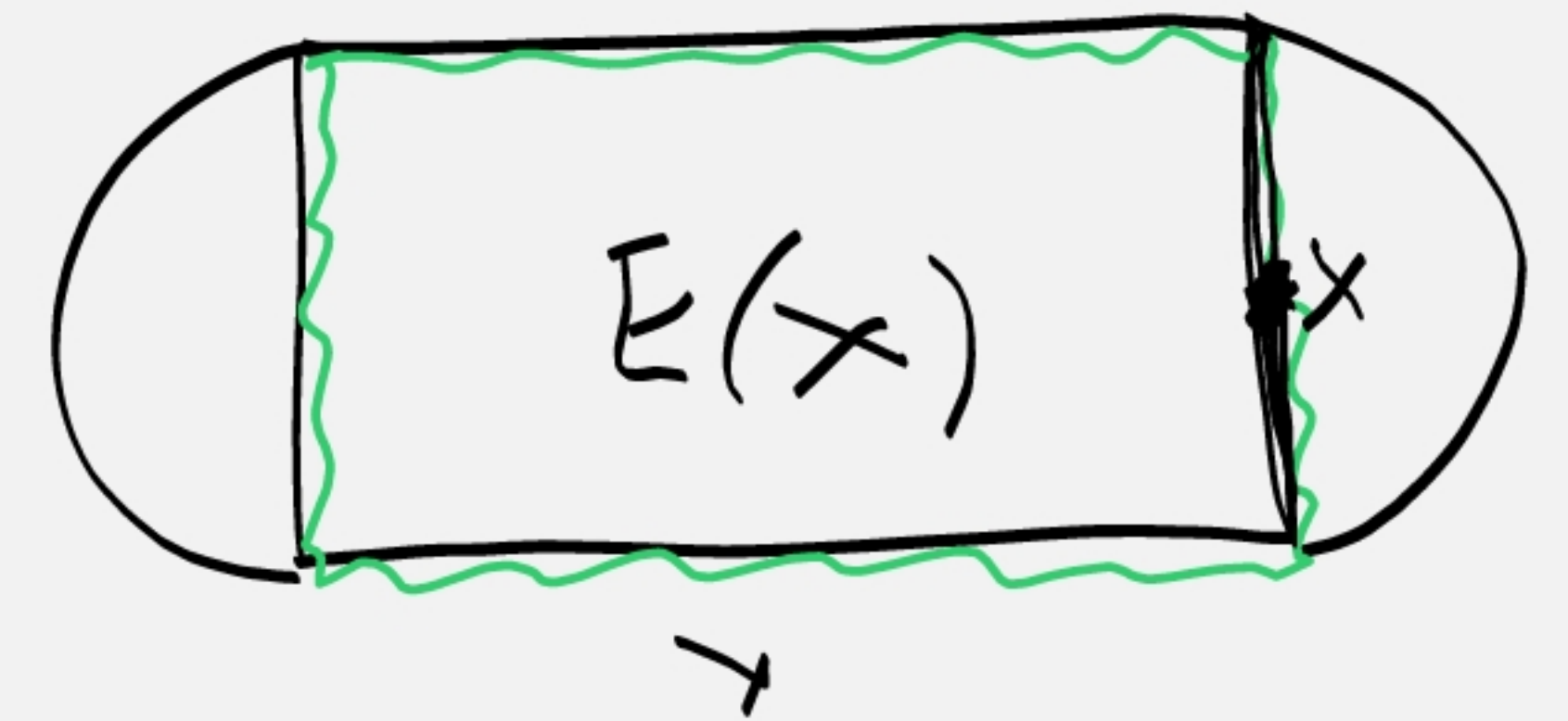
$$0 < 4 - 4x < 4$$

$$E(x) = \pi \cdot \frac{(2-2x)^2}{n^2} + x^2$$

$$E'(x) = \frac{2(2-2x) \cdot (-2)}{n} + 2x$$

$$= \frac{8(x-1)}{n} + 2x$$

$$\text{αγν. 9} / \bar{E} > 152$$



$$E = \pi \cdot \rho^2$$

$$\frac{\pi x^2}{4}$$

$$\frac{\pi x^2}{2}$$

$$E_{\text{τετ}} = x^2$$

$$\text{περ. κύκλου} = 4 - 4x$$

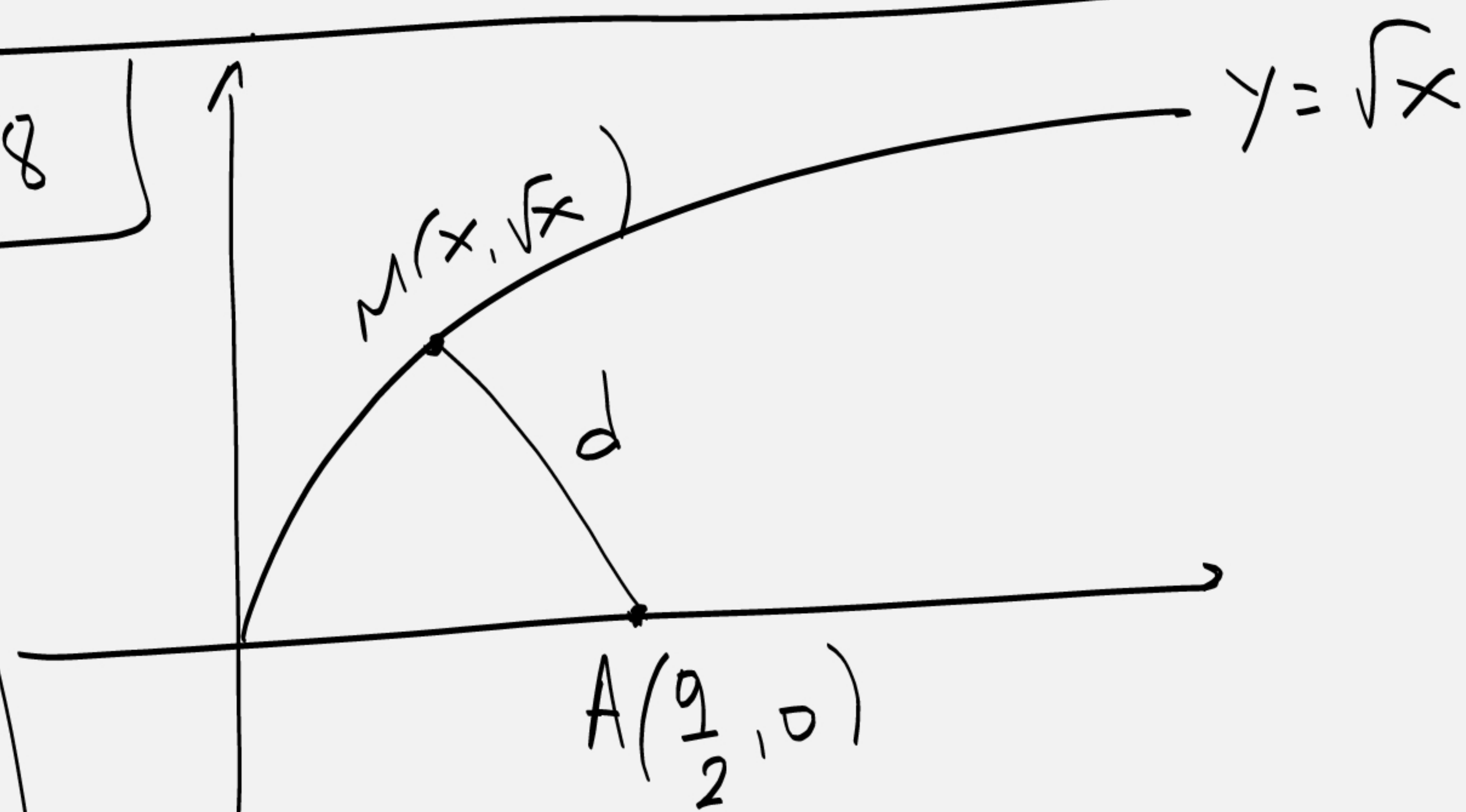
$$2\pi\rho = 4 - 4x \quad (=)$$

$$\rho = \frac{4-4x}{2\pi} = \frac{2-2x}{\pi}$$

$$E_k = \pi \cdot \left(\frac{2-2x}{\pi}\right)^2$$

$$x \in (0, 1)$$

αγν. 8



$$d(x) = \sqrt{\left(\frac{1}{2} - x\right)^2 + (0 - \sqrt{x})^2} =$$

$$= \sqrt{\frac{81}{4} - 9x + x^2 + x} = \sqrt{x^2 - 8x + \frac{81}{4}}$$

$$x \in [0, +\infty)$$

$$\text{Πεφ.} = 400\text{m}$$

Γνωτ. 4 το αλφάκτος.

Περίμ. του κύκλου

$$y + y + 2\pi\rho_{\text{κύκλου}} =$$

$$2y + \text{κύκλος} =$$

$$2y + 2\pi \cdot \frac{x}{2} = 2y + \pi x$$

$$2y + \pi x = 400 \quad (=)$$

$$2y = 400 - \pi x$$

$$y = \frac{400 - \pi x}{2} > 0$$

$$E(x) = \frac{x \cdot (400 - nx)}{2}$$

$$E(x) = \frac{-nx^2 + 400x}{2}$$

$$E'(x) = \frac{-2nx + 400}{2}$$

Προϋποθέσεις:

Πρέπει $x > 0$

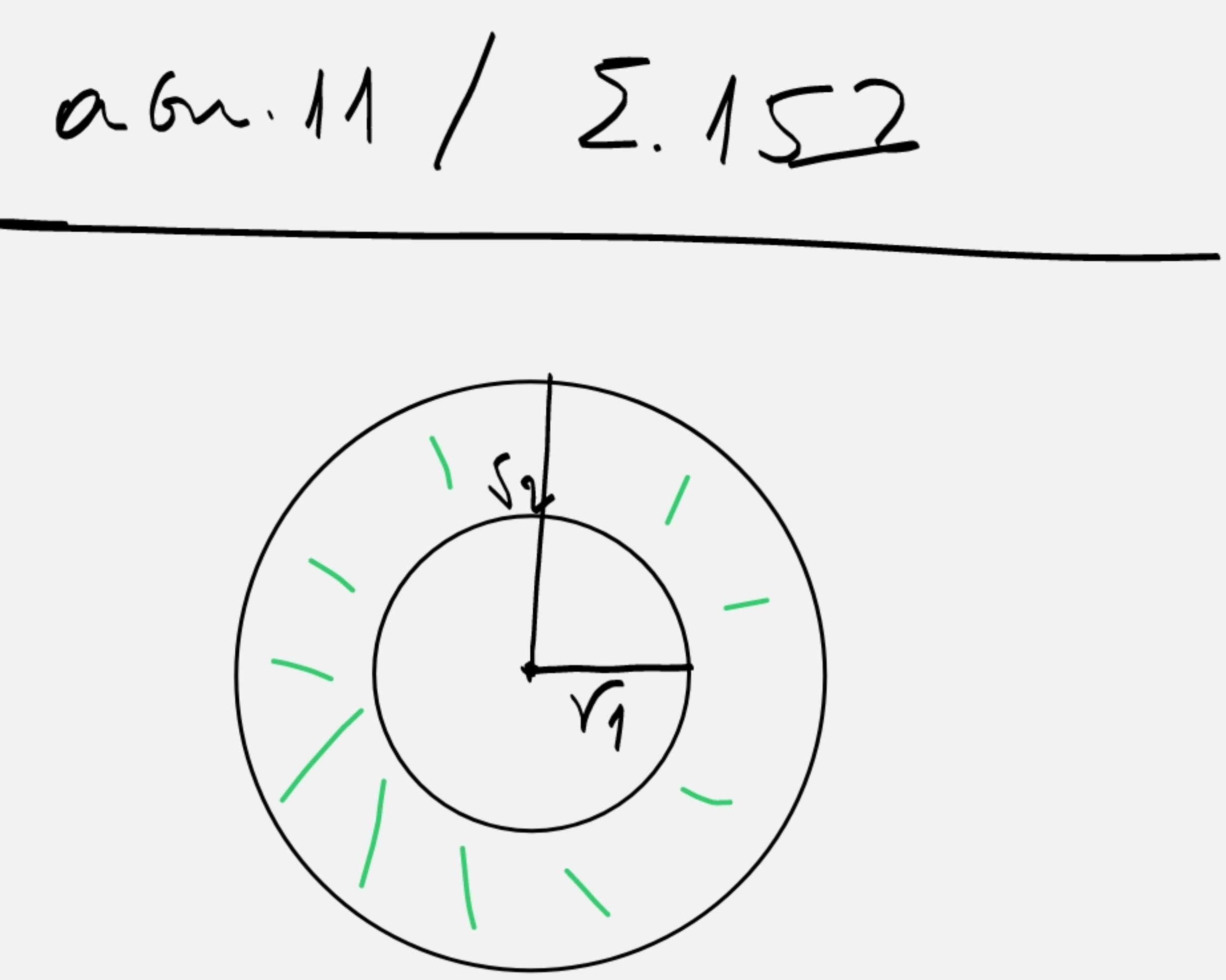
$$\text{και } 400 - nx > 0 \Leftrightarrow \frac{400 - nx}{2} > 0 \Leftrightarrow$$

$$400 - nx > 0 \Leftrightarrow -nx > -400$$

$$x < \frac{400}{n}. \text{ Άρα } x \in (0, \frac{400}{n})$$

αβν. 10 / 152		
Πλινθος αριθμ	Στοιχείο	Εγκυρξεί
100	1000	100 · 1000
101	1000 - 5	101 · (1000 - 5)
102	1000 - 5 · 2	102 · (1000 - 5 · 2)
100 + x	1000 - 5x	(100 + x) · (1000 - 5x)

Έστω x το πλινθος των
 επιπλίων των 100 αριθμ
 των δηλώνων εμμελίας
 $E(x) = (100 + x) \cdot (1000 - 5x)$
 προϋποθέσεις: $x \geq 0$
 $1000 - 5x \geq 0 \Leftrightarrow -5x \geq -1000$
 $x \leq 200$



$t = 0 \quad r_1 = 3 \text{ cm}, \quad r_2 = 5 \text{ cm}$
 $t > 0, r_1 \text{ αυξ. } 0,05 \text{ cm/s}$

$r_1(t)$ η ακτίνα των μικρών
 κυρτών των χρών.
 $r_2(t)$ των μεγάλων.
 $r_1(0) = 3, \quad r_2(0) = 5$
 $r_1'(t) = 0,05, \quad r_2'(t) = 0,04$

$$r_1'(t) = 0,05 \Rightarrow$$

$$r_1(t) = 0,05t + C_1$$

εναρδm $r_1(0) = 3 \Rightarrow$

$$0,05 \cdot 0 + C_1 = 3 \Rightarrow C_1 = 3$$

$$r_1(t) = 0,05t + 3$$

ομοίως

$$r_2(t) = 0,04t + 5$$

Μηδενισμός ως εκκλιτική

δακτυλίου $\Leftrightarrow$

$$r_1(t) = r_2(t)$$

$$0,05t + 3 = 0,04t + 5 \Leftrightarrow$$

$$0,05t - 0,04t = 2 \Leftrightarrow$$

$$0,01t = 2 \Leftrightarrow$$

$$t = 200$$

Αρα, m xpor. θυτήν

$t = 200$, ο εκκλ. δακτυλίου

"εξυφανί" ελάν

Το συμβαδιστ να εκκλ. δακτυλίου

ων v z xλia xporικm θυτήν t

$$\text{έλαν } E(t) = E_2(t) - E_1(t) =$$

$$n \cdot r_2^2(t) - n \cdot r_1^2(t) =$$

$$n \cdot (0,04t + 5)^2 - n \cdot (0,05t + 3)^2 =$$

$$n \cdot [0,04t + 5 + 0,05t + 3] \cdot (0,04t + 5 - 0,05t - 3) \Big] \sim$$

$$n \cdot (0,09t + 8) \cdot (-0,01t + 2)$$

$$0 \leq t \leq 200$$

$$E(t) = -9 \cdot 10^{-4} t^2 - 0,1t + 16$$

$$E'(t) = -18 \cdot 10^{-4} t - 0,1$$

$$E'(t) = 0 \Leftrightarrow$$

$$-18 \cdot 10^{-4} t = 0,1 \Leftrightarrow$$

$$t = - \frac{0,1}{18 \cdot 10^{-4}} = - \frac{1000}{18}$$

	$-\infty$	$-\frac{1000}{18}$	0	200
$E'(t)$	+	0	-	
$E(t)$	