

1.75  
1.  $\odot$

גוף המאמץ  $< 0$   
אילו בעיה השלמה  
/ צדדים אחרת  $< 9$   
אזכר הוא אחרת ילד  
זכרתי כן

$$\log_{\frac{1}{3}} [(m-1)x^2 + 2(m-4)x + m^2 - 7] < -2$$

$$(m-1)x^2 + 2(m-4)x + m^2 - 7 > \left(\frac{1}{3}\right)^{-2} = 9$$

$$(m-1)x^2 + 2(m-4)x + m^2 - 16 > 0$$

3) גוף ויתרתי לרוב זכר, לרוב  $x$

$$\Delta < 0 ! m-1 > 0$$

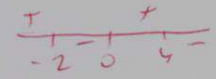
$$4(m-4)^2 - 4(m-1)(m^2-16) < 0 \quad \boxed{m > 1}$$

$$(m-4)^2 - (m-1)(m-4)(m+4) < 0$$

$$(m-4)[m-4 - m^2 - 3m + 4] < 0$$

$$-(m-4)(m^2 + 2m) < 0$$

$$-(m-4)m(m+2) < 0$$

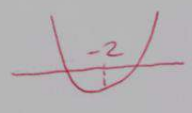


$$\boxed{m > 4}$$

$$\boxed{-2 < m < 0, m > 4}$$

2)  $\odot$

$m \neq 1$  אולי



$\Delta > 0$  2 נקודות  
 $\Rightarrow f(-2)$   
(אם  $f(-2) > 0$ )

$$f(x) = x^2 + \frac{2(m-4)}{m-1}x + \frac{m^2-16}{m-1} \Rightarrow 0$$

למה אחרת  $f(-2) < 0$

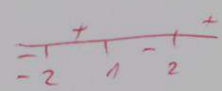
$$\boxed{0 < m < 4}$$

$$\boxed{m < -2}$$

$$f(-2) = 4 - \frac{4(m-4)}{m-1} + \frac{m^2-16}{m-1} < 0$$

$$\frac{4m-4 - 4m+16 + m^2-16}{m-1} < 0$$

$$\frac{m^2-4}{m-1} < 0$$



$$\boxed{m < -2}$$

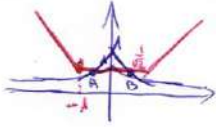
$$\boxed{-1 < m < 2}$$

$$\boxed{1 < m < 2}$$

$$\boxed{m < -2}$$

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ע 2

$$2^{-|x|} = \begin{cases} 2^{-x} & x > 0 \\ 2^x & x < 0 \end{cases}$$



$$A: \frac{1}{\sqrt{2}} = 2^x \rightarrow x = -\frac{1}{2}$$

$$B: \frac{1}{\sqrt{2}} = 2^{-x} \rightarrow x = \frac{1}{2}$$

$$\frac{1}{2\sqrt{2}} (|x+1| + |x-1|)$$

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

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

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

x < -1 : הנחמה

-1 ≤ x < 1

x ≥ 1

$$x = \frac{1}{2} \quad \left(-\frac{1}{2}, \frac{1}{2}\right) \quad \left(\frac{1}{2}, \frac{1}{2}\right)$$

א' ו ב' זה חייב להיות בין הפונ  
א' בין הפונקציות הם :

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$$\sqrt{\frac{x}{y} + 2 + \frac{y}{x}} = \frac{5}{2}$$

$$A + 2 + \frac{1}{A} > 0$$

$$\frac{A^2 + 2A + 1}{A} > 0$$

$$\frac{(A+1)^2}{A} > 0$$

המשוואה היא  $\frac{x}{y} = A$  (כאן)  
: המונה והמכנה אינם יכולים להיות 0  
 $x \neq 0$   
 $y \neq 0$

$$0 < A = \frac{x}{y}$$

המכנה והמונה אינם יכולים להיות 0  
אם  $x, y > 0$  או  $x, y < 0$   
אז  $x$  ו- $y$  הם אותו סימן

$$\sqrt{A + 2 + \frac{1}{A}} = \frac{5}{2} \quad |(\cdot)^2$$

$$A + 2 + \frac{1}{A} = \frac{25}{4} \quad | \cdot 4A$$

$$4A^2 + 8A + 4 = 25A$$

$$4A^2 - 17A + 4 = 0$$

$$A_1 = 4 \quad A_2 = \frac{1}{4}$$

$$\frac{x}{y} = 4 \quad \frac{x}{y} = \frac{1}{4}$$

$$x = 4y \quad y = 4x$$

יש 2 מקומות אפשריים:

$$|x+y| = 5$$

$$x = 4y$$

$$|5y| = 5$$

$$y = \pm 1$$

$$(4, 1)$$

$$(-4, -1)$$

$$y = 4x$$

$$|5x| = 5$$

$$x = \pm 1$$

$$(1, 4)$$

$$(-1, -4)$$

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3 (c)

$$\log_{abcd} x = \frac{1}{\frac{1}{a} + \frac{1}{b} + \frac{1}{c} + \frac{1}{d}} = \frac{1}{\frac{1}{\log_a x} + \frac{1}{\log_b x} + \frac{1}{\log_c x} + \frac{1}{\log_d x}} =$$

$$= \frac{1}{\log_x a + \log_x b + \log_x c + \log_x d} = \frac{1}{\log_x abcd} = \log_{abcd} x$$

(5)

$$\log_2 3 + 2 \log_2 x = x \quad \frac{\log_2 6}{\log_2 x}$$

$$\log_2 3 + \log_2 x = x \quad \frac{\log_2 6}{\log_2 x}$$

$$\log_2 x = x \frac{\log_2 6}{\log_2 x} = x \frac{\frac{1}{2} \log_2 2}{\log_2 x} = x \frac{1}{2 \log_2 x} = x^2 \log_2 2$$

$$\log_2 3x = (\log_2 x)^2 = 4$$

$$3x = 2^4 = 16 \rightarrow \boxed{x = \frac{16}{3}}$$

$\frac{0.5 \log_2 2}{1 + x > 0}$

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4 (c)

$$a \quad aq \quad aq^2 \quad aq^3$$

$$\begin{cases} a + aq + aq^2 + aq^3 = 180 \\ aq^2 - a = 36 \end{cases}$$

$$\begin{cases} a(1+q) + aq^2(1+q) = 180 \\ a(q-1)(q+1) = 36 \end{cases}$$

$$(a + aq^2)(1+q) = 180$$

$$a(q-1)(q+1) = 36$$

అనుకూలం అనుకూలం

$$\frac{180}{36} = \frac{a(1+q^2)(1+q)}{a(q-1)(q+1)}$$

$$S = \frac{1+q^2}{q-1}$$

$$5q - S = 1 + q^2$$

$$q^2 - 5q + 6 = 0$$

$$q = 2, 3$$

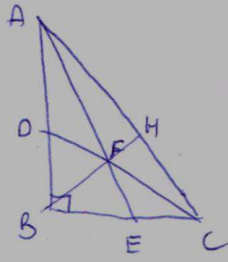
~~ఇది పంపిణీ అవుతుంది~~

$$q = 2: a = 12$$

$$12, 24, 48, 96 \quad \text{పంపిణీ}$$

$$q = 3: a = \frac{36}{8} = \frac{9}{2} \quad \text{కాదు}$$

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$$AC = \sqrt{24^2 + 18^2} = 30$$

$$\frac{AD}{BD} = \frac{AC}{BC}$$

$$\frac{x}{24-x} = \frac{30}{18} \rightarrow x = 15$$

$$DC = \sqrt{BD^2 + BC^2} = \sqrt{9^2 + 18^2} = \sqrt{405} = 9\sqrt{5}$$

صوبن ۳۸  
: ۱۱۱۵ ۳۳۳

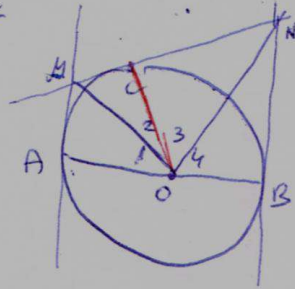
$$\frac{AB}{AC} = \frac{BE}{EC}$$

$$\frac{24}{30} = \frac{BE}{18-BE} \rightarrow BE = 8$$

$$AE = \sqrt{AB^2 + BE^2} = \sqrt{24^2 + 8^2} = \sqrt{640} = 8\sqrt{10}$$

صوبن ۳۸  
: ۱۱۱۵ ۳۳۳

$$\frac{1.83}{6}$$



$$\angle O_3 = \angle O_4 = \beta$$

$\mu \beta \quad \mu \text{COA}$   
 $\times \text{AOC} \text{ n'is } \text{n'is } \text{MO}$   
 $\times \theta_1 = \angle \theta_2 = \alpha$

$\mu \beta \quad \mu \text{CNO}$   
 $\times \text{COB} \text{ n'is } \text{n'is } \text{NO}$

$$\angle AOB = 180 = 2\alpha + 2\beta \rightarrow \alpha + \beta = 90^\circ \rightarrow \angle MON = 90^\circ$$

$$\underline{\text{P}} \quad AM = MC, \quad NC = BN$$

$$MC \cdot NC = CO^2 = r^2$$

$$\Rightarrow AM \cdot BN = r^2$$

ozi'p'ik' G'ar' n' d'

$$\underline{\text{C}} \quad \angle C_3 = \frac{1}{2} \cdot 60^\circ = 30^\circ$$

$30^\circ, 60^\circ, 90^\circ$  n'is' n'is' n'is'  $\triangle NCO$

$$2x = 2CN = ON$$

$$4x^2 = x^2 + 1 \rightarrow x = \frac{1}{\sqrt{3}} = CN = BN$$

$30^\circ, 60^\circ, 90^\circ$  n'is' n'is' n'is'  $\triangle AMO \leftarrow \triangle AOM = 60^\circ \leftarrow \angle AOC = 120^\circ$

$$2AO = MO = 2 \rightarrow AM = \sqrt{2-1} = \sqrt{3}$$

$$S_{ABNM} = \frac{AB(AM+BN)}{2} = \frac{2(\frac{1}{\sqrt{3}} + \sqrt{3})}{2} = \frac{1+\sqrt{3}}{\sqrt{3}} = \frac{4\sqrt{3}}{3}$$