$\boxed{97.}$

$$2x^3 - 4x^2 + 7x - 5 = 2(x-1)\left(x^2 - x + \frac{5}{2}\right)$$

$a = 1$; $b \cdot c = \frac{5}{2}$, $b + c = 1$ by Viète theorem

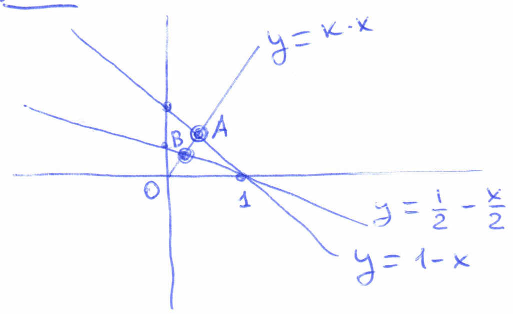
$$\frac{1}{(b-4)(a-2)+2a-4} + \frac{1}{(b-4)(c-2)+2c-4} + \frac{1}{(a-4)(c-2)+2c-4} =$$

$$= \frac{1}{(b-2)(a-2)} + \frac{1}{(b-2)(c-2)} + \frac{1}{(a-2)(c-2)} =$$

$$= \frac{c-2+b-2+a-2}{(a-2)(b-2)(c-2)} = \frac{a+b+c-6}{(a-2)(bc-2(b+c)+4)} =$$

$$= \frac{1+1-6}{(-1)\left(\frac{5}{2}-2+4\right)} = \frac{8}{9}$$

$\boxed{98.}$



$$x_A = \frac{1}{k+1}, \quad y_A = 1 - x_A = \frac{k}{k+1}$$

$$x_B = \frac{1}{2k+1}, \quad y_B = \frac{1}{2} - \frac{x_B}{2} = \frac{k}{2k+1}$$

$$OA = \sqrt{x_A^2 + y_A^2} = \frac{\sqrt{1+k^2}}{k+1}$$

$$OB = \sqrt{x_B^2 + y_B^2} = \frac{\sqrt{1+k^2}}{2k+1}$$

$$OA \cdot OB = \frac{1+k^2}{(k+1)(2k+1)}$$

$$OA \cdot OB = \frac{1}{3} \Rightarrow 3(1+k^2) = (k+1)(2k+1)$$

$$k^2 - 3k + 2 = 0$$

$$k_1 = 1, \quad k_2 = 2$$

$$k_1 + k_2 = 3$$

$\boxed{99}$

$$\sum_{k=1}^{\infty}\left(\frac{1-k}{2^k}\right)=\sum_{k=1}^{\infty}\frac{1}{2^k}-\sum_{k=1}^{\infty}\frac{k}{2^k}$$

$$S_1:=\sum_{k=1}^{\infty}\frac{1}{2^k}=\frac{1/2}{1-1/2}=1$$

$$S_2:=\sum_{k=1}^{\infty}\frac{k}{2^k}=\frac{1}{2^1}+\frac{2}{2^2}+\frac{3}{2^3}+\dots$$

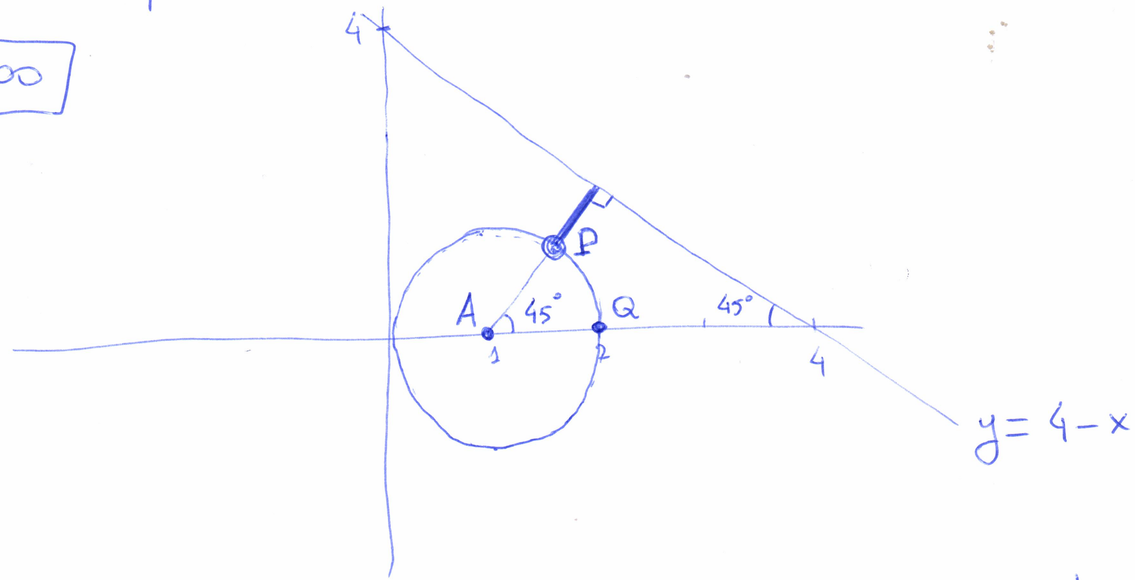
$$\frac{S_2}{2}=\frac{1}{2^2}+\frac{2}{2^3}+\frac{3}{2^4}+\dots$$

$$S_2-\frac{S_2}{2}=\frac{1}{2^1}+(2-1)\frac{1}{2^2}+(3-2)\frac{1}{2^3}+\dots=\frac{1}{2^1}+\frac{1}{2^2}+\frac{1}{2^3}+\dots=$$

$$=S_1=1 \Rightarrow S_2=2$$

$$S_1-S_2=-1$$

$\boxed{100}$



$p^2+q^2-2p=0 \Leftrightarrow (p-1)^2+q^2=1$. this is a circle.

$P=\left(1+\frac{\sqrt{2}}{2},\frac{\sqrt{2}}{2}\right)$, because $\angle PAQ=45^\circ$ (because AP is orthogonal to the line $y=4-x$)

Distance from P to the line is:

$$\frac{\left|1+\frac{\sqrt{2}}{2}+\frac{\sqrt{2}}{2}-4\right|}{\sqrt{2}}=\frac{-\sqrt{2}+3}{\sqrt{2}}=\frac{3}{\sqrt{2}}-1$$