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02 :	:	3 :
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06	01.5	$u_{n+1} = \frac{1}{3}u_n + \frac{2}{3} \quad u_0 = 4$	
	01.5	$u_n \leq 4 \quad : n$	(1)
		$u_0 = 4 \leq 4 \quad n = 0$	
		$u_{n+1} \leq 4 \quad u_n \leq 4$	
		$u_{n+1} \leq 4 \quad \frac{1}{3}u_n + \frac{2}{3} \leq 2 \leq 4 \quad \frac{1}{3}u_n \leq \frac{4}{3} \quad u_n \leq 4$	
	01.5	$u_n \leq 4 \quad n$	
		$v_n = u_n - 1 \quad (2)$	
		$v_{n+1} = u_{n+1} - 1 = \frac{1}{3}u_n - \frac{1}{3} = \frac{1}{3}v_n$	
	0.5	$v_0 = 3 \quad q = \frac{1}{3} \quad (v_n)$	
	0.5	$v_n = 3 \times \left(\frac{1}{3}\right)^n = \left(\frac{1}{3}\right)^{n-1} \quad : n \quad v_n$	(
		$u_n = v_n + 1 = \left(\frac{1}{3}\right)^{n-1} + 1 \quad : n \quad u_n$	
	01	$S_1 = v_0 + v_1 + \dots + v_{n-1} = 3 \times \left(\frac{1 - \left(\frac{1}{3}\right)^n}{1 - \frac{1}{3}} \right) = \frac{9}{2} \times \left(1 - \left(\frac{1}{3}\right)^n \right)$	(3)
	01	$S_2 = u_0 + u_1 + \dots + u_{n-1} = v_0 + v_1 + \dots + v_{n-1} + n = \frac{9}{2} \times \left(1 - \left(\frac{1}{3}\right)^n \right) + n$	
06	02	$(0; 100000) \quad M_i(x_i; y_i)$	(1)
	01	$G(3,5; 124,375) : \quad G$	(2)
		$\bar{x} = \frac{0+1+2+3+4+5+6+7}{8} = \frac{28}{8} = 3,5$	
		$\bar{y} = \frac{105+112+116+120+124+131+139+148}{8} = \frac{995}{8} = 124,375$	

(3)

01.5

$$a = \frac{\left(\frac{1}{8} \sum_{i=1}^7 x_i y_i\right) - \bar{x} \bar{y}}{\frac{1}{8} \sum_{i=1}^7 (x_i - \bar{x})^2} = \frac{30,3125}{5,25} = 5,8$$

$$b = \bar{y} - a\bar{x} = 124,375 - 5,8 \times 3,5 = 104,1$$

0.75

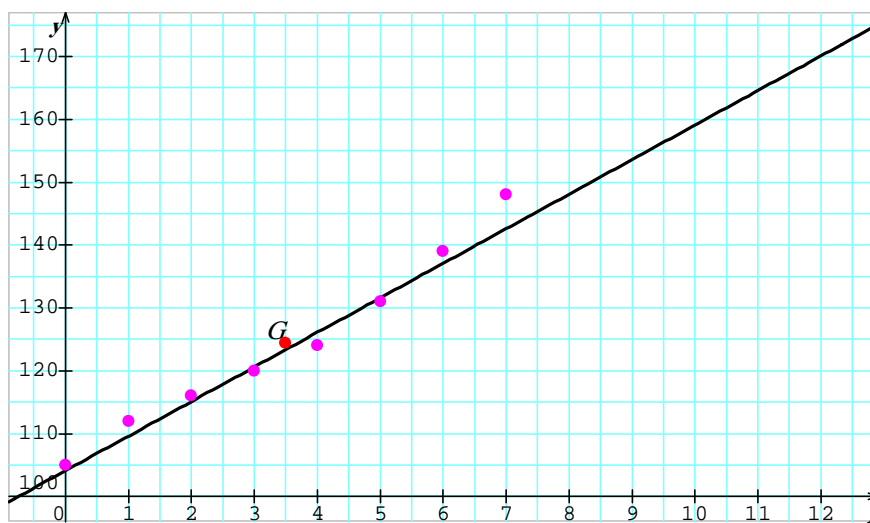
$$y = 5,8x + 104,1:$$

0.75

$$5,8 \times 10 + 104,1 = 162,1 \quad 2017 \quad (4)$$

$$x = 12 \quad x > 11,36 \quad 5,8x + 104,1 > 170 \quad (5)$$

170 2019



08

02

$$]2;4[\quad f \quad () : \quad (1)$$

$$\alpha \in]2;4[\quad f(\alpha) = 1 \quad f(-3) = 1 \quad () : \quad (2)$$

$$[4;5] \quad f \quad () : \quad (3)$$

$$: \quad () : \quad (4)$$

$$-3,5 \leq g(x) \leq -2,5 \quad 1 \leq f(x) \leq 3 \quad [-5; -3]$$

$$f(x) = g(x)$$

$$-2,5 \leq g(x) \leq 0 \quad 1 \leq f(x) \leq 4 \quad [-3; 2]$$

$$f(x) = g(x)$$

$$0 \leq g(x) \leq 1 \quad -2 \leq f(x) \leq 4 \quad [2; 4]$$

$$f(x) = g(x)$$

$$1 \leq g(x) \leq 2 \quad -2 \leq f(x) \leq 0 \quad [4; 6]$$

$$f(x) = g(x)$$

