

2010 -
: 3 :

4	0,5 0,5 0,5 0,5 0,5 0,5 0,5	$V_{n+1} = U_{n+1} - 1 = \frac{1}{2}(3U_n - 1) - 1 = \frac{3}{2}(V_n + 1) - \frac{3}{2} = \frac{3}{2}V_n$ $U_n = \left(\frac{3}{2}\right)^n - 1 : \quad V_n = \left(\frac{3}{2}\right)^n : \quad (2)$ $\lim_{n \rightarrow +\infty} V_n = +\infty : \quad \frac{3}{2} > 1$ $\lim_{n \rightarrow +\infty} U_n = +\infty :$ $P = V_0 \times (V_0 q^1) \times \dots \times (V_0 q^n) : \quad (3)$ $P = (V_0)^{n+1} \cdot q^{1+2+\dots+n} = (1)^{n+1} \left(\frac{3}{2}\right)^{\frac{n(n+1)}{2}} :$ $P = \left(\frac{3}{2}\right)^{\frac{n(n+1)}{2}} :$	حل التمرين 1

6	1		:	(1)	حل التمرين 2
	0,75		$G(\bar{X}; \bar{Y})$:	(2)	
	0,75	$\bar{X} = \frac{1 + 2 + \dots + 8}{8} = \frac{36}{8} = \frac{9}{2} = 4,5$:		
	0,5	$\bar{Y} = \frac{4,5 + 4,9 + 5,5 + 5,2 + 5,7 + 6 + 6,8 + 7,4}{8} = \frac{46}{8} = 5,75$			
	0,5		$G(4,5; 5,75)$:		
			: G		
			: $y = ax + b$:	(3)	
	1,5	$b = \bar{Y} - a \cdot \bar{X} = 4$	$a = \frac{\frac{1}{n} \sum x_i y_i - \bar{X} \cdot \bar{Y}}{\frac{1}{n} \sum (x_i - \bar{X})^2} = 0,38$		
			: 2020	(4)	
	1	$0,38 \times 19 + 4 = 7,22$: 19		
		. 7,22			

10

1
1

$$f'(0) = 0 \quad f(0) = -1 : \quad (I)$$

$$\alpha = 1 : \quad \alpha + \beta = 0 \quad \beta = -1$$

$$f(x) = x - e^x :$$

(II)

1

$$: g'(x) \quad -1$$

$$: g'(x) = 1 - e^x :$$

1

$$g'(x) > 0 \quad ; \quad x < 0 :$$

$$g'(x) < 0 \quad ; \quad x > 0 :$$

$$g'(x) = 0 \quad ; \quad x = 0 :$$

1

$$: \quad -2$$

0,75

$$\lim_{x \rightarrow -\infty} [g(x) - x] = 0 : \quad -3$$

0,75

$$. y = x : \quad -\infty$$

(C_g)

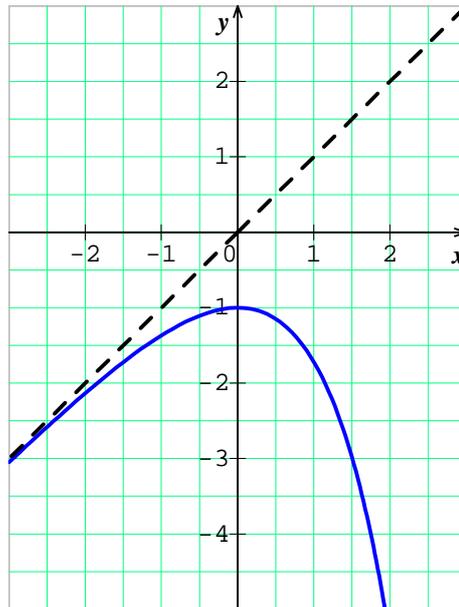
2

$$y = g'(0)(x - 0) + g(0) : \quad -4$$

$$y = -1 :$$

: (C_g) \quad -5

1,5



-6