

#1 (20 )

2001. 10. 16.

1.[4 ]

(a) "Euler"  $e^{i\theta}$   
 $= \frac{\pi}{4}$

(b) " " , " " 가?

2.[4 ] Cramer  
 $y$

$$\begin{aligned} 4x + y - z &= 9 \\ x - y + 2z &= 4 \\ -x + 2y - z &= 3 \end{aligned}$$

3.[4 ]

$$(x + e^y) dx + x e^y dy = 0$$

(a)  $y(x)$

(b)  $y(x)$

4.[4 ] 2

$$y'' + y' - 2y = -8x^3$$

(a)  $y_h(x)$

(b)  $y_p(x)$

5.[4 ]

$$x^2 y'' - 4x y' + 6y = x^4 e^x$$

(a)  $y_h(x)$

(b)  $y_p(x)$

#2 (20 )

2001. 11. 8.

1.[4 ]

(a) 가?

$$\sum_{s=0}^{\infty} s^{10} 10^s (x - \pi)^s$$

(b)  $x=0$  (analytic)  
가? ( )

$$\log x, \frac{1}{1-x^2}, e^{-x}, \cot x$$

2.[4 ] (Bessel)

$$\frac{d}{dx} [J_\nu(\lambda x)] = \lambda J_{\nu-1}(\lambda x) - \frac{\nu}{x} J_\nu(\lambda x) \dots$$

$$\frac{d}{dx} [J_\nu(\lambda x)] = -\lambda J_{\nu+1}(\lambda x) + \frac{\nu}{x} J_\nu(\lambda x) \dots$$

(a)

$$J_{\nu-1}(x) + J_{\nu+1}(x)$$

(b)

$$\int J_4(2x) dx$$

3.[4 ]

(a)  $y' + 2y = 0$

(b)  $y' + 2y = 2x$

4.[4 ] Legendre  $\mu=0$

$$(1-x^2) y'' - 2x y' + \mu(\mu+1) y = 0$$

5.[4 ] Bessel  $n=1$

$y(0)$

$$x^2 y'' + x y' + (x^2 - n^2) y = 0$$