

2003

2



1

1. $\sqrt[3]{2} \times \sqrt[6]{16}$? [2]

$$2 \qquad 4 \qquad \sqrt{2} \qquad 2\sqrt{2} \qquad 2\sqrt[3]{2}$$

3. $\vec{a} = (-1, 3)$ $\vec{b} = (2, 1)$

$$\vec{a} \cdot (\vec{a} + \vec{b}) \quad ? \quad [2]$$

11 13 15 17 19

4. $E = \begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}$ $A = \begin{pmatrix} 0 & 1 \\ 1 & 0 \end{pmatrix}$. a b 가

$$(E + 2A)^2 = aE + bA \quad , \quad a + b \quad ? \quad [2 \quad]$$

6 7 8 9 10

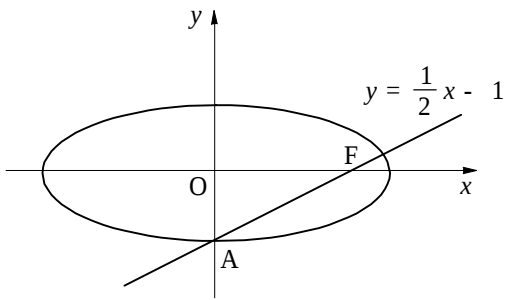
2. $x^2 - 5x - 2 = 0$ α β ,

$$\frac{1}{\alpha+1} + \frac{1}{\beta+1} \quad ? \quad [2] \quad]$$

$$2 \qquad 3 \qquad \frac{3}{2} \qquad \frac{7}{4} \qquad \frac{5}{2}$$

5.

점 F ,
 y -
 점 A .
 선분 AF
 $y = \frac{1}{2}x - 1$,



? [2]

$4\sqrt{2}$

$2\sqrt{7}$

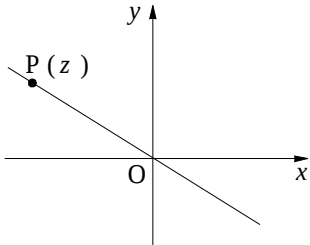
5

$2\sqrt{6}$

$2\sqrt{5}$

6.

점 P 가
 , $<$ $>$
 선분 OP
 _____ ?
 (, z^- z) [2]



< >

$\text{ㄱ. } \bar{z}$ $\text{ㄴ. } -z$ $\text{ㄷ. } \frac{1}{z}$ $\text{ㄹ. } -\frac{1}{z^-}$

ㄱ, ㄴ

ㄱ, ㄷ

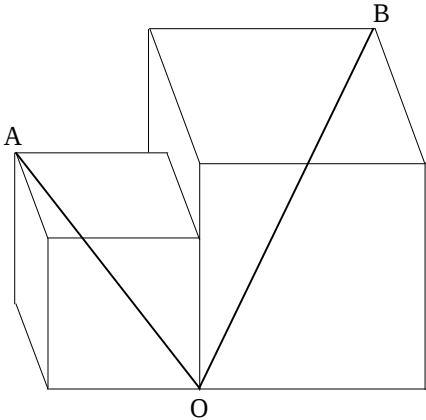
ㄴ, ㄷ

ㄴ, ㄹ

ㄷ, ㄹ

7.

가 $2^2 + 3^2$ 가
 O OA OB AOB θ ,
 $\cos \theta$? [2]



$\frac{1}{3}$

$\frac{1}{2}$

$\frac{3}{5}$

$\frac{2}{3}$

$\frac{3}{4}$

8.

$f(x)$ x
 .
 $f(x) - 2 \int_0^x e^t f(t) dt = 1$
 , $f''(0)$? (, e ,
 $f''(x)$ $f(x)$) [3]

2

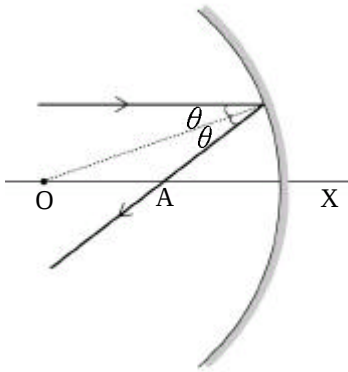
4

6

8

10

9. 원 O 가
R
OX
A , OA
?
(, θ
, $0^\circ < \theta < 20^\circ$) [2]



$$\frac{R}{2 \cos \theta} \qquad \frac{R}{2 \sin \theta}$$
$$R (1 - \cos \theta) \qquad \frac{R}{2 \cos 2 \theta}$$
$$\frac{R}{2 \sin 2 \theta}$$

10. 1 $P_0(x_0, y_0)$,
 n $P_n(x_n, y_n)$.

$$\begin{pmatrix} x_{2n-1} \\ y_{2n-1} \end{pmatrix} = \begin{pmatrix} \cos 45^\circ & -\sin 45^\circ \\ \sin 45^\circ & \cos 45^\circ \end{pmatrix} \begin{pmatrix} x_{2n-2} \\ y_{2n-2} \end{pmatrix}$$
$$\begin{pmatrix} x_{2n} \\ y_{2n} \end{pmatrix} = \begin{pmatrix} 1 & 0 \\ 0 & -1 \end{pmatrix} \begin{pmatrix} x_{2n-1} \\ y_{2n-1} \end{pmatrix}$$

, P_{2003} ? [3]
 (x_0, y_0)
 $(x_0, -y_0)$
 $\left(\frac{x_0 - y_0}{\sqrt{2}}, \frac{x_0 + y_0}{\sqrt{2}}\right)$
 $\left(\frac{x_0 + y_0}{\sqrt{2}}, \frac{x_0 - y_0}{\sqrt{2}}\right)$
 $\left(\frac{x_0 + y_0}{\sqrt{2}}, -\frac{x_0 + y_0}{\sqrt{2}}\right)$

11. A B $0:0$
가 . 5 가
A 1 , B
5:4 ? (,
0.8) [3]

$$\begin{matrix} 0.2 \times 0.8^8 & 0.8^8 & 0.2 \times 0.8^9 \\ 0.8^9 & 0.8^{10} & \end{matrix}$$

12. $f(x)$ $g(x)$
 $h(x)$.

$$h(x) = \frac{1}{3}f(x) + \frac{2}{3}g(x)$$

< > _____ ? [3]

< >

ㄱ . $y = f(x)$ $y = g(x)$ 가
 $y = h(x)$.

ㄴ . $y = f(x)$ $y = g(x)$ 가 y
 $y = h(x)$ y .

ㄷ . $y = f(x)$ $y = g(x)$ 가
 $y = h(x)$.

ㄱ
ㄴ, ㄷ
ㄴ, ㄷ
ㄱ, ㄴ, ㄷ

13. a $(x - 8)(x - 15)(x - a) < 0$ x $f(a)$, $f(a)$? [3]

14 12 10 8 6

14. n , $<$ $>$ _____ ? [3]

<

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$\text{㉠. } \log_2(n+3) > \log_2(n+2)$

$\text{㉡. } \log_2(n+2) > \log_3(n+2)$

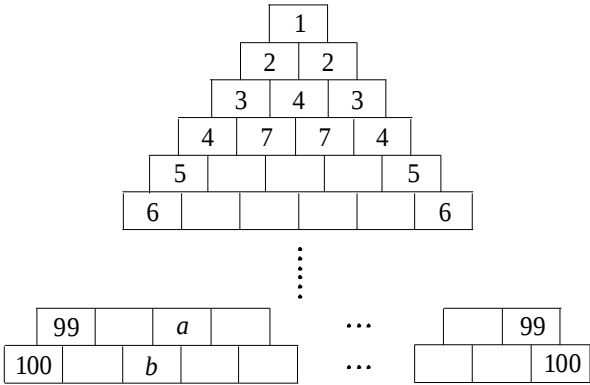
$\text{㉢. } \log_2(n+2) > \log_3(n+3)$

㉠ ㉡ ㉢ ㉠, ㉡ ㉠, ㉢ ㉡, ㉢ ㉠, ㉡, ㉢

15. 1 1 , 2 2 , ..., 100 100 .

(1) 1 100 .

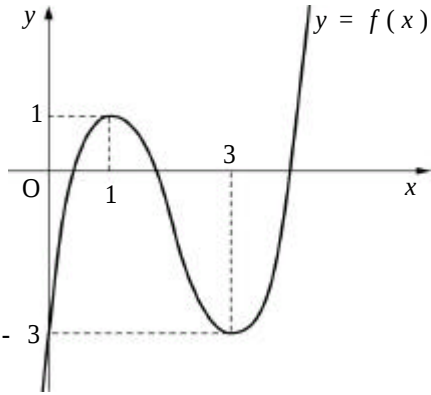
(2) .



, $b - a$? [3]

4878 4872 4864
4858 4852

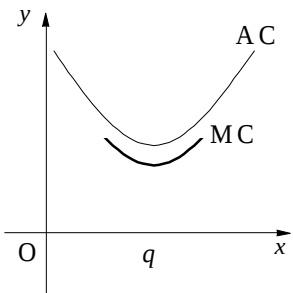
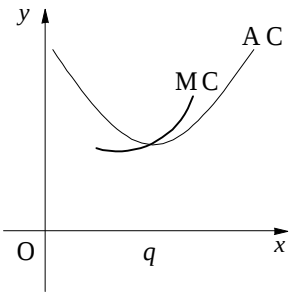
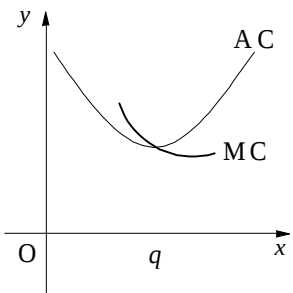
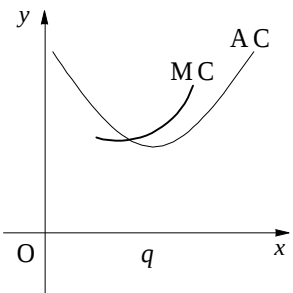
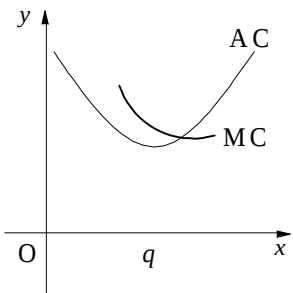
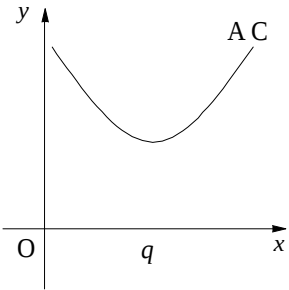
16. $y = f(x)$ 가 $f(1) = 1$ $f(3) = -3$ 가 , $f(0) = -3$. $\int_0^3 |f'(x)| dx$? [3]



6 7 8 9 10

23. 가 1 km 가 1 km
99%가 . 가
 $\frac{1}{2}$,
km 가?
(, $\log 2 = 0.3010$, $\log 9.9 = 0.9956$.) [3]
68 78 88 98 108

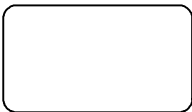
24. x
 $f(x)$. , $\frac{f(x)}{x}$
 , AC .
 , $f(x)$ 가 가 $f'(x)$
 x
MC .
 $AC = \frac{f(x)}{x}$ 가 $x = q$
가 , $x = q$
? [3]



(25 30)

25. U A B
 $A \cap B^c = A$, $n(A) = 9$, $n(B) = 14$
 , $n(A \cup B)$. (, $n(X)$ X
 .) [2]

26. $\sum_{n=1}^{\infty} \left\{ \frac{1 + (-1)^n}{3} \right\}^n$ S , $20S$
 . [3]



27. $f(x) = x^3 + x^2 + 2x + 1$ $f(x) = x - a$
 $R_1, f(x) = x + a$
 R_2 $R_1 + R_2 = 6$ $f(x) = x - a^2$
[3]

28. $x^3 = 1$ ω n
 $f(n)$
 $f(n) = \frac{\omega^{2n}}{\omega^n + 1}$
 $f(1) + f(2) + f(3) + \dots + f(20)$ [3]

29. x $\ln x - x + 20 - n = 0$
 n [3]

30. $a - 15d$, d , 31
 $a - 15d, \dots, a - d, a, a + d, \dots, a + 15d$
 σ , $\frac{\sigma}{d}$
 $d > 0$ $\sqrt{5} = 2.24$ [3]

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