

150

10

5

50

1.

A

B

C

D

2.

A

B

C

D

3.

A .

B.

C .

D .

4.

A

B

C

D

5.

A.

B.

C.

D.

6.

A.

B.

C.

D.

7.

A

B

C

D

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A

B

C

D

9.

A.

B.

C.

D.

10.

A.

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1  $A = x^2 + 4$   $B = x|x - 1|$   $A = B =$

A 1,2 B 0,1,2

C 2, 1,0,1,2 D 0

2  $z = 1 + i$   $\bar{z} =$

A.  $1 + i$  B  $1 - i$  C  $1 - i$  D  $i$

3  $a_n = a_1 + 4(a_5 - 12) = a_6$

A 13 B 14 C 15 D 16

$\alpha \in (4, 3)$   $\sin(\alpha - \frac{\pi}{2}) =$  ( )

A.  $\frac{4}{5}$  B.  $\frac{4}{5}$  C.  $\frac{3}{5}$  D.  $\frac{3}{5}$

5  $\triangle ABC$   $A, B, C$   $a, b, c$   $\sin A : \sin B : \sin C = 2 : 3 : 4$   $\cos C =$

A  $\frac{2}{3}$  B  $\frac{1}{3}$  C  $\frac{1}{4}$  D  $\frac{1}{4}$

6  $x^2 + y^2 - 2x - 4y - 4 = 0$

A 1, 2, 3 B 1, 2, 3 C 1, 2, 2 D 1, 2, 3

7  $f(x) = e^x \ln x$   $f'(x) =$

A  $\frac{e^x}{x}$  B  $e^x - \frac{1}{x}$   
 C  $\frac{e^x - x \ln x - 1}{x}$  D  $\frac{1}{x} \ln x$

8  $3x - \frac{1}{x} = n$   $n \in \mathbb{N}^*$   $16 - n =$

A 2 B 3 C 4 D 5

9  $ABCD - A_1B_1C_1D_1$   $E, F, G$   $AD, BC, BB_1$

$C_1E, FG$

10 A  $\frac{\sqrt{2}}{6}$  B  $\frac{1}{3}$  C  $\frac{1}{6}$  D  $\frac{\sqrt{2}}{3}$   
 $C: y^2 = 8x$  F O M C  $|MF| = 4$   $|OM| =$

11 A  $2\sqrt{5}$  B  $\sqrt{33}$  C  $4\sqrt{2}$  D 4  
 $F_1, F_2$  C:  $\frac{y^2}{a^2} - \frac{x^2}{b^2} = 1$   $a = 0, b = 0$   $F_1 = x$   
 A B  $AF_2B$  C

12 A  $\frac{\sqrt{7}}{2}$  B  $\frac{\sqrt{21}}{3}$  C  $\sqrt{5}$  D  $\sqrt{3}$   
 $f(x) = a \ln x - x^2 - x - 1$   $f'(x)$   
 A 1, B 0,1 C 1,3 D  $\frac{1}{2}, 1$

13  $\vec{a} = \log_2 3, \sin \frac{4}{3}$ ,  $\vec{b} = \log_3 8, m$ ,  $\vec{a} \cdot \vec{b} = m$   
 A  $2\sqrt{3}$  B  $\sqrt{3}$  C  $2\sqrt{3}$  D  $3\sqrt{2}$

14  $f(x) = ae^x - \ln x$  1,2  $a$   
 A  $e^2$  B e C  $e^{-1}$  D  $e^{-2}$

15.  $f(x) = \cos(\omega x - \frac{\pi}{3}) - 1$  ( $\omega > 0$ )  $\pi$   $f(x)$   $[0, \frac{\pi}{2}]$   
 ( )  
 A.  $\frac{1}{2}$  B. 1 C.  $\frac{3}{2}$  D. 2

16 A X N 3, 2 P X 4 0.7 P 3 X 4 0.2  
 B 10 11 11 12 13 14 16 18 20 22 60 14  
 C  $|r| = 1$   
 D  $\hat{y} = 0.3x + m$   
 $m = 2.8$   $m = 4$

17  $a = 1, b = 0$   $a = b = 3$   $\frac{2}{a-1} - \frac{1}{b}$   
 A  $\frac{3-2\sqrt{2}}{4}$  B  $\frac{3+2\sqrt{2}}{2}$  C  $\frac{3-4\sqrt{2}}{2}$  D  $\frac{3+4\sqrt{2}}{4}$

18  $P \triangle ABC$   $PA$   $ABC$   $BAC = 60^\circ$   $AB = 2$   $AC = 1$   $PA = 3$

$P \triangle ABC$

A  $\frac{13}{2}$  B 13 C 52 D  $\frac{13\sqrt{13}}{6}$

19  $x^2 + y^2 = 1$   $a, 2$   $3$   $a$

A 2,4 B 0,4

C  $2\sqrt{3}, 2\sqrt{3}$  D  $2\sqrt{3}, 0$   $0, 2\sqrt{3}$

20  $C: \frac{x^2}{4} + \frac{y^2}{16} = 1$   $A, B$   $l$   $C$   $M$

$N$   $MA$   $k_1$   $NB$   $k_2$   $NA$   $k_3$   $k_1 = 2k_2$

$k_1, k_3$

B  $\frac{1}{2}$  C 8 D 8

)

$n \in \mathbf{N}^*$   $2a_{n-1} - a_n = a_{n-2}$  ( )

$E(X) = 2$   $E(2X) = 4$  ( )

$f(x) = e^x(x-1)$  ( )

$b$  ( )

$1 - 0 = 2$  ( )

$\bar{x} = \bar{y}$  ( )

13.  $y = 2x - 1$   $\frac{1}{2}, 0$  ( )

14.  $y = 3\sin 2x - \frac{1}{3}$   $\frac{1}{6}$   $y = 3\sin 2x$  .( )

15.  $a_1, a_2, a_3, a_4, \dots$   $a_1, a_3, a_5, \dots$  .( )

16.  $a, b, ac^2, bc^2$  .( )

17.  $y^2 = 2px$   $2p$  .( )

18.  $X \sim N(\mu, \sigma^2)$   $P(X > \frac{1}{2})$  .( )

19.  $\triangle ABC$   $\sin A = \sin B$

1~10.B C D A D A B D C A

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④

16.

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