

★

2020

23 150 6 120 .

注意事项: 1

2

3

2B
0.5

4

12

5 .

1 $a \in \mathbf{R}$ $z = (a^2 - 1) + (a - 1)i$ $a =$

A -1

B 0

C 1

D -1 1

2 $A = \{x \mid \frac{x-1}{x} < 0\}$ $B = \{y \mid y = 2^x, x < 0\}$

A $A \subsetneq B$

B $B \subsetneq A$

C $A \cap B = \emptyset$

D $A = B$

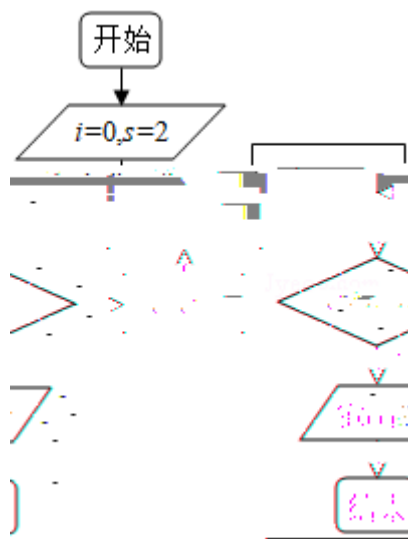
3

A 2

B $\frac{1}{3}$

C $-\frac{1}{2}$

D -3



- 4 α, β l, m $\alpha \perp \beta$ $\alpha \cap \beta = l$
 $m \perp \alpha$ $m // \beta$ $m // \alpha$ $m \perp \beta$
 $m \perp l$ $m \perp \beta$ $m // l$ $m // \beta$

A 3 B 2 C 1 D 0

5

(Pick) 1899

$ABCD$
 N

L

$$S = N + \frac{1}{2}L - 1.$$

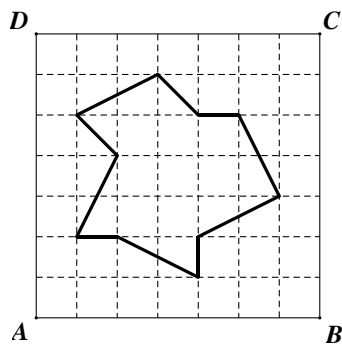
$ABCD$
 P P

A $\frac{9}{49}$

B $\frac{2}{7}$

C $\frac{19}{49}$

D $\frac{33}{98}$



6 $(1-2x)^{2020} = a_0 + a_1x + \dots + a_{2020}x^{2020}$ $x \in \mathbf{R}$ $\frac{a_1}{2} + \frac{a_2}{2^2} + \dots + \frac{a_{2020}}{2^{2020}}$

A 2

B 0

C -1

D -2

7 $\{a_n\}$ n S_n $a_1 = 11$ $\frac{S_5}{5} - \frac{S_3}{3} = -2$ $S_n < 0$ n

A 7

B 11

C 12

D 13

8 $a = \frac{2}{\ln 2}$ $b = \frac{3}{\ln 3}$ $c = \frac{5}{\ln 5}$

A $c < b < a$

B $a < b < c$

C $b < a < c$

D $c < a < b$

9 $f(x) = A \sin(\omega x + \varphi)$ ($\omega > 0, A > 0, 0 < \varphi < \pi$)

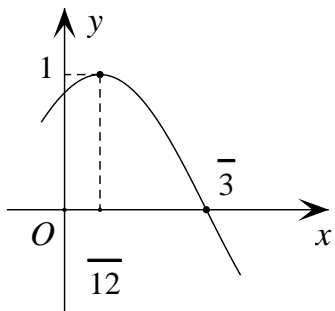
$m, n \in (\pi, 2\pi)$ $f(m) = f(n) = -\frac{1}{4}$ $f\left(\frac{3m+3n}{2}\right) =$

A $-\frac{1}{2}$

B $\frac{1}{2}$

C $-\frac{\sqrt{3}}{2}$

D $\frac{\sqrt{3}}{2}$



10 **R** $f(x)$ $f(x) + f(-x) = 2\cos x$ $x \geq 0$ $f'(x) + \sin x \geq 0$
 $f(x) \geq f\left(\frac{\pi}{2}\right) + \cos x$

- A $(-\infty, -\frac{\pi}{2}] \cup [\frac{\pi}{2}, +\infty)$ B $\left[-\frac{\pi}{2}, \frac{\pi}{2}\right]$ C $[\frac{\pi}{2}, +\infty)$ D $(-\infty, \frac{\pi}{2}]$

11 C $\frac{x^2}{a^2} - \frac{y^2}{b^2} = 1 (a > 0, b > 0)$ F_1 F_2 F_2 C

P, Q $\angle F_1PQ = 90^\circ$ ΔF_1PQ b C

- A $\frac{\sqrt{5}}{2}$ B $\sqrt{5}$ C $\sqrt{3}$ D $\sqrt{2}$

12 A-BCD $AB = CD = \sqrt{6}$ $AC = BD = a$ $AD = BC = b$ $a + 2b = 6$

$\alpha // AB$ $\alpha // CD$ A-BCD α

- A $\frac{\sqrt{7}}{2}$ B $\sqrt{7}$ C 4 D 2

4 5

13

x

y

x	9	9.5	10	10.5	11
y	11	10	8	6	5

y

x

$y = bx + a$

$a = 40$ b _____.

14 $\{a_n\}$ $a_1 = 1$ $a_n a_{n+1} = 2^n$ $a_{50} =$ _____.

15 ABCD $AC \perp BD$ $BD = 4$ $\vec{BA} \cdot \vec{BD} + \vec{DC} \cdot \vec{DB} =$ _____.

16 $C: y^2 = 2px (p > 0)$ F x E E l C

$A(x_1, y_1), B(x_2, y_2) (0 < y_1 < y_2)$ BF y $D(0, -1)$ $y_2 - 2y_1$

_____.

70

17 21

22 23

60

17 12

$$\Delta ABC \quad A, B, C \quad a, b, c \quad (2c - a)b = \frac{\sin B}{\sin C} (b^2 + c^2 - a^2)$$

1 B

$$2 \quad \Delta ABC \quad 6\sqrt{3} \quad 3\sin A = 2\sin C \quad \overrightarrow{BD} = 3\overrightarrow{DC} \quad AD$$

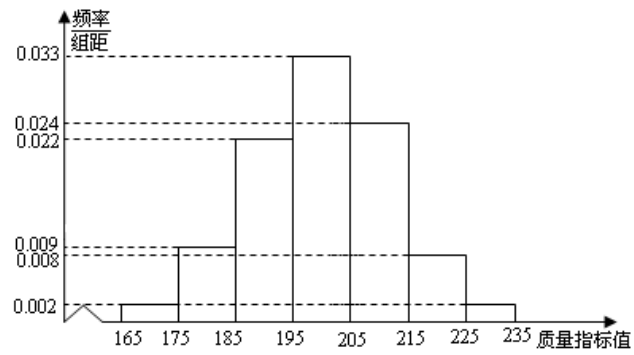
18 12

19 12

$ABCD$ 16 8 AB x AB
 $A B$ E
 1 E
 2 $l E$ $M l$ $x=3$ N $\triangle MNB$

20 12

500



1 165,175] 225,235] 2 2
 10
 2 215,235] 6
 10 1
 $E X$
 3

$m (m \geq 2, m \in \mathbf{N}^*)$

m p m
 p

$0.9^9 \approx 0.3874$ $0.9^{10} \approx 0.3487$

21 12

$$f(x) = e^{x-1} - a \ln x + x^2 - 2 \quad g(x) = a(x-1) \quad (a \in \mathbf{R})$$

1 $x > 0 \quad f(x) \geq 0 \quad a$

2 $\min\{p, q\} \quad . \quad h(x) = \min\{f(x), g(x)\} \quad (x > 0, a \neq 0)$

$h(x)$

() 10

22 23

22 4 4 10

$$xOy \quad C_1 \quad \begin{cases} x = 2 \cos t \\ y = 2 \sin t \end{cases} \quad t \quad C_1 \quad \varphi: \begin{cases} x' = x \\ y' = \frac{\sqrt{3}}{2} y \end{cases}$$

$C_2 \quad O \quad x$

1 C_2

2 $P, Q \quad C_2 \quad OP \perp OQ \quad \frac{|PQ|}{|OP| \cdot |OQ|}$

23 4 5 10

$$f(x) = x^2 - x - 3 \quad g(x) = k|x-1| + 1 \quad k > 0.$$

1 $k = 1 \quad f(x) < g(x)$

2 $g(x) + g(-x) = 8 \quad a + b + c = k \quad f(a) + f(b) + f(c) + 9 = 0.$