山西特岗答案

一、选择题

6、D、2

7、B、"$\exists x_0 \in [2,+\infty), x_0^2 + \tan x_0 + 1 \le 0$"

8、A、$\{1,4\}$

9、B、第二象限角

10、D、$-\sqrt{5}$

11、D、函数具有中心对称性，对称中心为（$\frac{\pi}{2}+k\pi,0$），$k \in Z$

12、B、$\frac{33}{2}$

13、A、$\frac{9}{2}\pi$

14、A、$\frac{5}{4}\pi$

15、D、c>b>a

16、C、$4\sqrt{2}$

17、A、20200

二、填空题

18. $\frac{1}{4}$

19. $\left[\frac{\pi}{3}+2k\pi,\frac{2\pi}{3}+2k\pi\right]$

20. $4x-y-e=0$

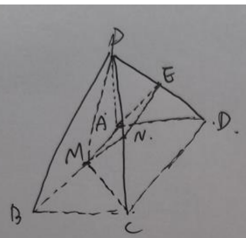
21. $\left[\frac{1}{6},\frac{5}{6}\right]\cup\left\{\frac{7}{8}\right\}$

三、解答题.

22、（1）$a_n = 2n-1$

（2）$T_n = \dfrac{n}{2n+1}$

23、答案：（1）见简析　（2）$\dfrac{2\sqrt{3}}{3}$



(1). 取PC中点N，PD中点E，连结MN，NE，AE.

$NE \underset{=}{\parallel} \frac{1}{2}CD \underset{=}{\parallel} AM \Rightarrow MN \parallel AE$.

又 $\left.\begin{array}{l}E为PD中点 \\ PA=AD\end{array}\right\} \Rightarrow AE \perp PD$.

$\left.\begin{array}{l}PA\perp面ABCD \Rightarrow PA\perp CD \\ CD\perp AD \\ AD\cap PA=A\end{array}\right\} \Rightarrow \left.\begin{array}{l}CD\perp面PAD \\ AE\subset面PAD\end{array}\right\} \Rightarrow CD\perp AE$

$\left.\begin{array}{l}又\ MN\parallel AE \Rightarrow \left.\begin{array}{l}MN\perp PD \\ MN\perp CD \\ PD\cap CD=D\end{array}\right\} \Rightarrow MN\perp面PCD \\ MN\subset面PCM\end{array}\right\}$

$\Rightarrow 面PCM\perp面PCD$.

24.　答案：（1）$P_1 = \dfrac{1}{28}$　（2）E(x)=1

（1）$P_1 = \dfrac{C_3^1 C_6^1 A_3^3}{A_9^4} = \dfrac{1}{28}$

解析：

(2).

P	0	1	2	3
X	$\frac{8}{27}$	$\frac{4}{9}$	$\frac{1}{9}$	$\frac{1}{27}$

$P(X=0) = C_3^0 \times (\frac{1}{3})^0 \times (1-\frac{1}{3})^3 = \frac{8}{27}$

$P(X=1) = C_3^1 \times (\frac{1}{3})^1 \times (1-\frac{1}{3})^2 = \frac{4}{9}$

$P(X=2) = C_3^2 \times (\frac{1}{3})^2 \times (1-\frac{1}{3})^1 = \frac{1}{9}$

$P(X=3) = C_3^3 \times (\frac{1}{3})^3 \times (1-\frac{1}{3})^0 = \frac{1}{27}$

$\therefore E(X) = 3 \times \frac{1}{3} = 1$

25、答案：（1）$\frac{x^2}{2}+y^2=1$　（2）$\frac{5}{8}$

26、（1）见解析（2）见解析

(1) 要证：$\frac{x_1-x_2}{\ln x_1-\ln x_2}<\frac{x_1+x_2}{2}$

即证：$\ln\frac{x_2}{x_1}>\frac{2(x_2-x_1)}{x_1+x_2}$

即证：$\ln\frac{x_2}{x_1}>\frac{2(\frac{x_2}{x_1}-1)}{1+\frac{x_2}{x_1}}$

令 $x=\frac{x_2}{x_1}$

$f(x)=\ln x-\frac{2(x-1)}{x+1}>0$

$f'(x)=\frac{1}{x}-\frac{4}{(x+1)^2}=\frac{(x-1)^2}{x(x+1)^2}>0$

$\therefore f(x)$ 在 $x>1$ 时单调递增.

$\because f(1)=0$

$\therefore f(x)>0$ 在 $x>1$ 时恒成立

$\therefore \frac{x_1-x_2}{\ln x_1-\ln x_2}<\frac{x_1+x_2}{2}$

(2) 由 $f(x)=0 \Rightarrow 2x-2+ae^x=0 \Rightarrow e^x=-\frac{2(x-1)}{a}$　x_1,x_2 为函数根　令 $x_1<x_2$.

则 $e^{x_1}=-\frac{2(x_1-1)}{a}$　①

$e^{x_2}=-\frac{2(x_2-1)}{a}$　②

$\frac{②}{①}$ $e^{x_2-x_1}=\frac{x_2-1}{x_1-1}$

$x_2-x_1=\ln\frac{x_2-1}{x_1-1}$

$x_2-x_1=\ln(x_2-1)-\ln(x_1-1)$

即 $(x_2-1)-(x_1-1)=\ln(x_2-1)-\ln(x_1-1)$

$\frac{(x_2-1)-(x_1-1)}{\ln(x_2-1)-\ln(x_1-1)}=1$

又由(1)得 $\frac{x_1-x_2}{\ln x_1-\ln x_2}<\frac{x_1+x_2}{2}$

$\therefore \frac{(x_2-1)-(x_1-1)}{\ln(x_2-1)-\ln(x_1-1)}<\frac{x_1-1+x_2-1}{2}$ #

$\therefore \frac{x_1+x_2-2}{2}>1$

$x_1+x_2-2>2$

$x_1+x_2>4$