

90分

2024.06高一数学第二次统测



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班级: 高一(1)班
考号:

准考证号									
1	0	8	4	1	3	5			
[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]
[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]
[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]
[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]
[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]
[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]
[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]
[7]	[7]	[7]	[7]	[7]	[7]	[7]	[7]	[7]	[7]
[8]	[8]	[8]	[8]	[8]	[8]	[8]	[8]	[8]	[8]
[9]	[9]	[9]	[9]	[9]	[9]	[9]	[9]	[9]	[9]

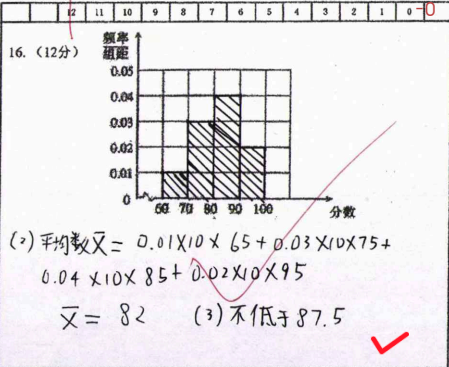
客观题

1	A	B	C	D	4	A	B	C	D	7	A	B	C	D	-4
2	A	B	C	D	5	A	B	C	D	8	A	B	C	D	
3	A	B	C	D	6	A	B	C	D	9	A	B	C	D	

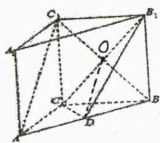
填空题 (仅错误的打×)

10	20		11	4	10	5
12	30°		13	92	11	0
14	$\frac{\sqrt{2}}{4}$		15	$\frac{\sqrt{2}}{4}$	12	0
					13	0
					14	0
					15	-5

解答题



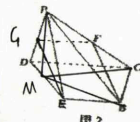
17. (10分)



证明: (1) $\because ABC-A_1B_1C_1$ 为直三棱柱
 $\therefore CC_1 \perp \text{面} ABC$
 $\therefore CC_1 \perp AC$
 $BC \perp AC$
 $BC \subset \text{面} BCC_1$
 $CC_1 \subset \text{面} BCC_1$
 $BC \cap CC_1 = C$
 $\therefore \text{面} BCC_1 \perp \text{面} ABC$
 $\therefore AC \perp \text{面} BCC_1$
 $\therefore AC \perp BC_1$

(2) BC_1 与 B_1C 交于点 O , 连接 OD
 $\because BC_1$ 与 B_1C 为平行四边形对角线
 $\therefore O$ 为 B_1C 中点
 $\therefore OD$ 为 $\triangle B_1CA$ 中位线
 $\therefore OD \parallel AC_1$
 $OD \subset \text{面} B_1CD$
 $AC_1 \not\subset \text{面} B_1CD$
 $\therefore AC_1 \parallel \text{面} B_1CD$

18. (12分)



证明: (1) 取 PC 中点 G , 连接 GF, GE
 $\therefore GF$ 为 $\triangle PBC$ 中位线
 $\therefore GF \parallel BC \parallel EB$
 $GF = \frac{1}{2} BC = EB$

\therefore 四边形 $BEFG$ 为平行四边形
 $\therefore BF \parallel GE$
 $BF \subset \text{面} PBC$
 $GE \subset \text{面} PDE$
 $\therefore \text{面} PBC \parallel \text{面} PDE$

(2) 过点 P 作 $PM \perp DE$, 交点为 M , 连接 MB, MC
 $\text{面} PDE \perp \text{面} B_1CDE$
 $PM \perp DE$
 $\text{面} PDE \cap \text{面} B_1CDE = DE$
 $PM \subset \text{面} PDE$
 $\therefore PM \perp \text{面} B_1CDE$
 $PM \perp MB, PM \perp MC$

由边角关系得: $PM = \sqrt{3}$
 $BM = CM = \sqrt{3}$

$PB = \sqrt{MB^2 + MP^2} = \sqrt{MC^2 + MP^2} = PC = \sqrt{6}$
 $\therefore PB = PC$

(3) $\because PM \perp \text{面} B_1CDE$
 \therefore 角 PBM 为所求角
 $\cos \angle PBM = \frac{BM^2 + PM^2 - PB^2}{2 \cdot BM \cdot PM} = \frac{\sqrt{2}}{2}$
 $\therefore \angle PBM = 45^\circ$