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{ \\\\partial ^ { 2 } z } { \\\\partial x \\\\partial y } .$$(18)(本题满分10分)设非负函数y=y(x)(x≥0)满足微分方程xy\'-y\'+2=0.当曲线y=y(x)过原点时,其与直线x=1及y=0围成平面区域D的面积为2,求D绕y轴旋转所得旋转体 积.(19)(本题满分10分)计算二重积分$$\\\\int { \\\\left( x - y \\\\right) d x d y , }$$其中$$D = \\\\left\\\\{ \\\\left( x , y \\\\right) | \\\\left( x - 1 \\\\right) ^ { 2 } + \\\\left( y - 1 \\\\right) ^ { 2 } \\\\le 2 , y \\\\ge x \\\\right\\\\} .$$D(20)(本题满分12分)y=y(x)是区间(-π,π)内过点$$\\\\left( - \\\\frac { \\\\pi } { \\\\sqrt 2 } , \\\\frac { \\\\pi } { \\\\sqrt 2 } \\\\right)$$的光滑曲线.当-π<x<0时,曲线上任一点处的法线都过原点;当0≤x<π时,函数y(x)满足y\'+y+x=0.求y(x)的表达式.(21)(本题满分11分)(I)证明拉格朗日中值定理:若函数f(x)在[a,b]上连续,在(a,b)内可导,则存在点ξ∈(a,b),使得f(b)-f(a)=f\'(ξ)(b-a).(Ⅱ)证明:若函数f(x)在x=0处连续,在(0,8)(8>00)内可导,且$$\\\\lim \_ { x \\\\to 0 } ^ { f \' \\\\left( x \\\\right) } = A ,$$则f\'(0)存在,且f\'(0)=A.(22)(本题满分11分)设(I)求满足$$A \\\\xi \_ { 2 } = \\\\xi \_ { 1 } , A ^ { 2 } \_ { 3 } = \\\\xi \_ { 1 }$$的所有向量$$\\\\xi \_ { 2 } , \\\\xi \_ { 3 } ;$$(Ⅱ)对(I)中的任意向量$$\\\\xi \_ { 2 } , \\\\xi \_ { 3 } ,$$,证明$$\\\\xi \_ { 1 } , \\\\xi \_ { 2 } , \\\\xi \_ { 3 }$$线性无关.(23)(本题满分11分)设二次型$$f \\\\left( x \_ { 1 } , x \_ { 2 } , x \_ { 3 } \\\\right) = a x \_ { 1 } ^ { 2 } + a x \_ { 2 } ^ { 2 } + \\\\left( a - 1 \\\\right) x \_ { 3 } ^ { 2 } + 2 x \_ { 1 } x \_ { 3 } - 2 x \_ { 2 } x \_ { 3 }$$(I)求二次型f的矩阵的所有特征值;","figure\_list":[],"table\_list":[],"answer\_list":[[{"x":0,"y":177},{"x":1654,"y":177},{"x":1654,"y":2339},{"x":0,"y":2339}]],"pos\_list":[[{"x":69,"y":177},{"x":1580,"y":177},{"x":1580,"y":1631},{"x":69,"y":1631}]],"element\_list":[{"type":0,"text":"z=f(x+y,x-y,xy),其中f具有二阶连续偏导数,求d与$$\\\\frac { \\\\partial ^ { 2 } z } { \\\\partial x \\\\partial y } 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{ \\\\left( x - y \\\\right) d x d y , }$$其中$$D = \\\\left\\\\{ \\\\left( x , y \\\\right) | \\\\left( x - 1 \\\\right) ^ { 2 } + \\\\left( y - 1 \\\\right) ^ { 2 } \\\\le 2 , y \\\\ge x \\\\right\\\\} .$$","pos\_list":[[{"x":163,"y":497},{"x":1452,"y":494},{"x":1452,"y":557},{"x":164,"y":559}]],"content\_list":[{"type":1,"prob":99,"string":"计算二重积分","option":"","pos":[{"x":163,"y":510},{"x":381,"y":509},{"x":381,"y":545},{"x":164,"y":546}]},{"type":2,"prob":98,"string":"$$\\\\int { \\\\left( x - y \\\\right) d x d y , }$$","option":"","pos":[{"x":381,"y":496},{"x":606,"y":496},{"x":607,"y":558},{"x":381,"y":559}]},{"type":1,"prob":99,"string":"其中","option":"","pos":[{"x":607,"y":509},{"x":689,"y":509},{"x":689,"y":545},{"x":607,"y":545}]},{"type":2,"prob":97,"string":"$$D = \\\\left\\\\{ \\\\left( x , y \\\\right) | \\\\left( x - 1 \\\\right) ^ { 2 } + \\\\left( y - 1 \\\\right) ^ { 2 } \\\\le 2 , y \\\\ge x \\\\right\\\\} 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} \_ { 3 } = \\\\xi \_ { 1 }$$的所有向量$$\\\\xi \_ { 2 } , \\\\xi \_ { 3 } ;$$(Ⅱ)对(I)中的任意向量$$\\\\xi \_ { 2 } , \\\\xi \_ { 3 } ,$$,证明$$\\\\xi \_ { 1 } , \\\\xi \_ { 2 } , \\\\xi \_ { 3 }$$线性无关.","pos\_list":[[{"x":165,"y":1345},{"x":1100,"y":1343},{"x":1100,"y":1443},{"x":165,"y":1446}]],"content\_list":[{"type":1,"prob":96,"string":"(Ⅰ)求满足","option":"","pos":[{"x":165,"y":1349},{"x":364,"y":1350},{"x":364,"y":1382},{"x":165,"y":1381}]},{"type":2,"prob":96,"string":"$$A \\\\xi \_ { 2 } = \\\\xi \_ { 1 } , A ^ { 2 } \_ { 3 } = \\\\xi \_ { 1 }$$","option":"","pos":[{"x":364,"y":1345},{"x":684,"y":1344},{"x":684,"y":1389},{"x":364,"y":1390}]},{"type":1,"prob":99,"string":"的所有向量","option":"","pos":[{"x":684,"y":1351},{"x":874,"y":1351},{"x":873,"y":1383},{"x":684,"y":1383}]},{"type":2,"prob":97,"string":"$$\\\\xi \_ { 2 } , \\\\xi \_ { 3 } 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2 } x \_ { 3 }$$","pos\_list":[[{"x":433,"y":1540},{"x":1285,"y":1539},{"x":1285,"y":1587},{"x":433,"y":1587}]],"content\_list":[{"type":2,"prob":99,"string":"$$f \\\\left( x \_ { 1 } , x \_ { 2 } , x \_ { 3 } \\\\right) = a x \_ { 1 } ^ { 2 } + a x \_ { 2 } ^ { 2 } + \\\\left( a - 1 \\\\right) x \_ { 3 } ^ { 2 } + 2 x \_ { 1 } x \_ { 3 } - 2 x \_ { 2 } x \_ { 3 }$$","option":"","pos":[{"x":433,"y":1540},{"x":1285,"y":1539},{"x":1285,"y":1587},{"x":433,"y":1587}]}]},{"type":0,"text":"(I)求二次型f的矩阵的所有特征值;","pos\_list":[[{"x":165,"y":1600},{"x":753,"y":1598},{"x":753,"y":1629},{"x":165,"y":1631}]],"content\_list":[{"type":1,"prob":99,"string":"(Ⅰ)求二次型f的矩阵的所有特征值;","option":"","pos":[{"x":165,"y":1600},{"x":753,"y":1598},{"x":753,"y":1629},{"x":165,"y":1631}]}]}]}]}],"prism\_version":"1.0.9","prism\_wnum":0,"width":1654}', 'RequestId': '148C248B-60E3-5E77-84D3-91CFABCC2BEF'}}