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x \_ { 2 } ^ { 2 } + a x \_ { 3 } ^ { 2 } + 2 x \_ { 1 } x \_ { 2 } - 8 x \_ { 1 } x \_ { 3 } + 2 x \_ { 2 } x \_ { 3 }$$在正交变换x=Qy下的标准形为$$\\\\lambda \_ { 1 } y \_ { 1 } ^ { 2 } + \\\\lambda \_ { 2 } y \_ { 2 } ^ { 2 } ,$$,求a的值及一个正交矩阵0.","figure\_list":[],"table\_list":[],"answer\_list":[[{"x":0,"y":26},{"x":1654,"y":26},{"x":1654,"y":592},{"x":0,"y":592}]],"pos\_list":[[{"x":53,"y":26},{"x":1610,"y":26},{"x":1610,"y":200},{"x":53,"y":200}]],"element\_list":[{"type":0,"text":"(21)(本题满分11分)","pos\_list":[[{"x":53,"y":35},{"x":422,"y":36},{"x":422,"y":68},{"x":53,"y":67}]],"content\_list":[{"type":1,"prob":99,"string":"(21)(本题满分11分)","option":"","pos":[{"x":53,"y":35},{"x":422,"y":36},{"x":422,"y":68},{"x":53,"y":67}]}]},{"type":0,"text":"设二次型$$f \\\\left( x \_ { 1 } , x \_ { 2 } , x \_ { 3 } \\\\right) = 2 x \_ { 1 } ^ { 2 } - x \_ { 2 } ^ { 2 } + a x \_ { 3 } ^ { 2 } + 2 x \_ { 1 } x \_ { 2 } - 8 x \_ { 1 } x \_ { 3 } + 2 x \_ { 2 } x \_ { 3 }$$在正交变换x=Qy下的标准形为$$\\\\lambda \_ { 1 } y \_ { 1 } ^ { 2 } + \\\\lambda \_ { 2 } y \_ { 2 } ^ { 2 } ,$$,求a的值及一个正交矩阵0.","pos\_list":[[{"x":144,"y":86},{"x":1596,"y":79},{"x":1596,"y":186},{"x":144,"y":193}]],"content\_list":[{"type":1,"prob":99,"string":"设二次型","option":"","pos":[{"x":144,"y":94},{"x":292,"y":94},{"x":292,"y":128},{"x":145,"y":128}]},{"type":2,"prob":99,"string":"$$f \\\\left( x \_ { 1 } , x \_ { 2 } , x \_ { 3 } \\\\right) = 2 x \_ { 1 } ^ { 2 } - 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\\\\mu | \\\\left( i = 1 , 2 , \\\\cdots , n \\\\right) .$$利用$$Z \_ { 1 } , Z \_ { 2 } , \\\\cdots , Z \_ { n }$$估计σ.(I)求$$Z \_ { 1 }$$的概率密度;(Ⅱ)利用一阶矩求的矩估计量;(Ⅲ)求的最大似然估计量.","figure\_list":[],"table\_list":[],"answer\_list":[[{"x":0,"y":1410},{"x":1654,"y":1410},{"x":1654,"y":2339},{"x":0,"y":2339}]],"pos\_list":[[{"x":44,"y":1410},{"x":1606,"y":1410},{"x":1606,"y":1776},{"x":44,"y":1776}]],"element\_list":[{"type":0,"text":"(23)(本题满分11分)","pos\_list":[[{"x":53,"y":1411},{"x":422,"y":1411},{"x":422,"y":1443},{"x":53,"y":1443}]],"content\_list":[{"type":1,"prob":99,"string":"(23)(本题满分11分)","option":"","pos":[{"x":53,"y":1411},{"x":422,"y":1411},{"x":422,"y":1443},{"x":53,"y":1443}]}]},{"type":0,"text":"某工程师为了解一台天平的精度,用该天平对一物体的质量做n次测量,该物体的质量\\\\mu是已知的.设n次测量结果$$X \_ { 1 } , X \_ { 2 } , \\\\cdots , X \_ { n }$$相互独立且均服从正态分布$$N \\\\left( \\\\mu , \\\\sigma ^ { 2 } \\\\right) ,$$,该工程师记录的是n次测量的绝对误差$$Z \_ { i } = | X \_ { i } - \\\\mu | \\\\left( i = 1 , 2 , \\\\cdots , n \\\\right) .$$利用$$Z \_ { 1 } , Z \_ { 2 } , \\\\cdots , Z \_ { n }$$估计σ.","pos\_list":[[{"x":143,"y":1464},{"x":1596,"y":1458},{"x":1597,"y":1617},{"x":143,"y":1622}]],"content\_list":[{"type":1,"prob":99,"string":"某工程师为了解一台天平的精度,用该天平对一物体的质量做n次测量,该物体的质量","option":"","pos":[{"x":143,"y":1464},{"x":1524,"y":1467},{"x":1524,"y":1500},{"x":143,"y":1497}]},{"type":1,"prob":99,"string":"\\\\mu","option":"","pos":[{"x":1524,"y":1472},{"x":1551,"y":1472},{"x":1551,"y":1503},{"x":1524,"y":1503}]},{"type":1,"prob":99,"string":"是","option":"","pos":[{"x":1551,"y":1467},{"x":1597,"y":1467},{"x":1597,"y":1500},{"x":1551,"y":1500}]},{"type":1,"prob":99,"string":"已知的.设n次测量结果","option":"","pos":[{"x":145,"y":1522},{"x":543,"y":1522},{"x":543,"y":1554},{"x":145,"y":1555}]},{"type":2,"prob":99,"string":"$$X \_ { 1 } , X \_ { 2 } , \\\\cdots , X \_ { n }$$","option":"","pos":[{"x":543,"y":1520},{"x":743,"y":1518},{"x":744,"y":1562},{"x":544,"y":1564}]},{"type":1,"prob":99,"string":"相互独立且均服从正态分布","option":"","pos":[{"x":744,"y":1521},{"x":1205,"y":1521},{"x":1205,"y":1554},{"x":744,"y":1554}]},{"type":2,"prob":98,"string":"$$N \\\\left( \\\\mu , \\\\sigma ^ { 2 } \\\\right) ,$$","option":"","pos":[{"x":1204,"y":1516},{"x":1366,"y":1515},{"x":1367,"y":1559},{"x":1205,"y":1560}]},{"type":1,"prob":99,"string":",该工程师记录","option":"","pos":[{"x":1366,"y":1521},{"x":1596,"y":1521},{"x":1596,"y":1554},{"x":1366,"y":1554}]},{"type":1,"prob":99,"string":"的是n次测量的绝对误差","option":"","pos":[{"x":144,"y":1580},{"x":555,"y":1579},{"x":556,"y":1612},{"x":144,"y":1614}]},{"type":2,"prob":99,"string":"$$Z \_ { i } = | X \_ { i } - 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