

REPUBLIC OF SOUTH AFRICA  
DEPARTMENT OF MINERALS AND ENERGY  
EXAMINATION FOR THE MINE SURVEYORS CERTIFICATE OF COMPETENCY

DATE: 10 October 2008  
TIME: 12:30 to 15:30 (3 Hours)

TOTAL MARKS: 100  
TO PASS: 50

SURVEY III

- Note:**
- (1) Work to 1 second of arc and 0,001m.
  - (2) Trigonometrical functions must be shown to six (6) decimal places.
  - (3) All steps and checks must be shown.
  - (4) All calculations and answers to be shown clearly.
  - (5) Sketches have been reduced and are not to scale and attached herewith.
  - (6) The make and model number of your calculator **must** be written on the front cover of your answer book.

A Prospecting Right application plan needs to be compiled as per the Mineral and Petroleum Resources Development Act, Act No. 28 of 2002. The coordinates of area A1, A2, A3, A4, A5, A6, A7, B9, B1, B2, B3, B4, B5, B6, B7, B8, A8, A9 and A1 need to be recalculated in the Lo29 survey system.

Given:

1. Conversion Cape feet to metres: 1 metre = 3,176059371 feet
2. Coordinates of Trig 1, Trig 2, Trig 3 and Trig 4 in Lo29 survey system
3. SG diagram for the farm Uitkyk 220IS is on a Local survey system
4. SG diagram for the farm Mooivley 219IS is on the WGS84/29 survey system
5. The mean shift from the Lo to the WGS system is:

$$Y = -27,538\text{m}$$
$$X = -296,888\text{m}$$

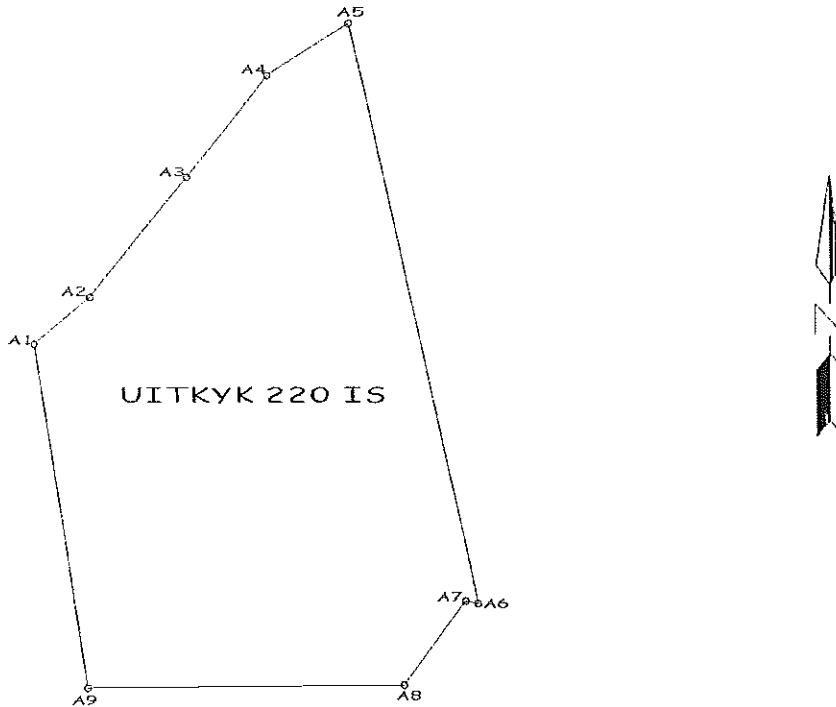
With the information given, calculate:

1. The coordinates of the prospecting area in the Lo29 survey system.
2. The area in hectares of the prospecting area.

[100 marks]

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SURVEY III - 17 OCTOBER 2008  
SG DIAGRAM UITKYK 220 IS

	SIDES		ANGLES	LOCAL SURVEY SYSTEM	
	CAPE FEET			Y	X
A1 - A2	2253,026	A1	120:18:22	A1	-27189,901 208327,099
A2 - A3	4738,524	A2	191:37:19	A2	-28937,363 206904,952
A3 - A4	4039,801	A3	180:00:00	A3	-31934,689 203234,850
A4 - A5	2938,560	A4	161:55:21	A4	-34490,039 200105,923
A5 - A6	18244,958	A5	69:53:37	A5	-36963,300 198519,066
A6 - A7	409,893	A6	66:47:11	A6	-40936,474 216326,154
A7 - A8	3192,435	A7	243:35:24	A7	-40533,622 216250,503
A8 - A9	9781,521	A8	127:29:30	A8	-38610,341 218798,567
		A9	98:23:16		

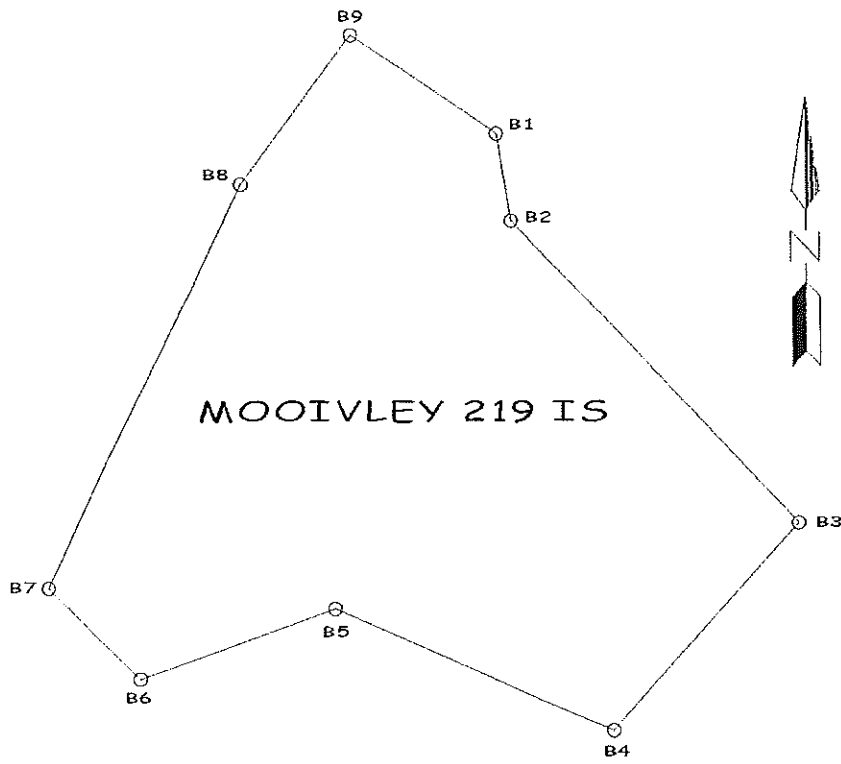


SCALE: 1 : 200 000

THE FIGURE A1, A2, A3, A4, A5, A6, A7, A8, A9 AND A1 REPRESENTS AN AREA OF 21743,776 MORGEN WHICH REPRESENTS THE FARM UITKYK 220 IS

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SG DIAGRAM MOOIVLEY 219 IS

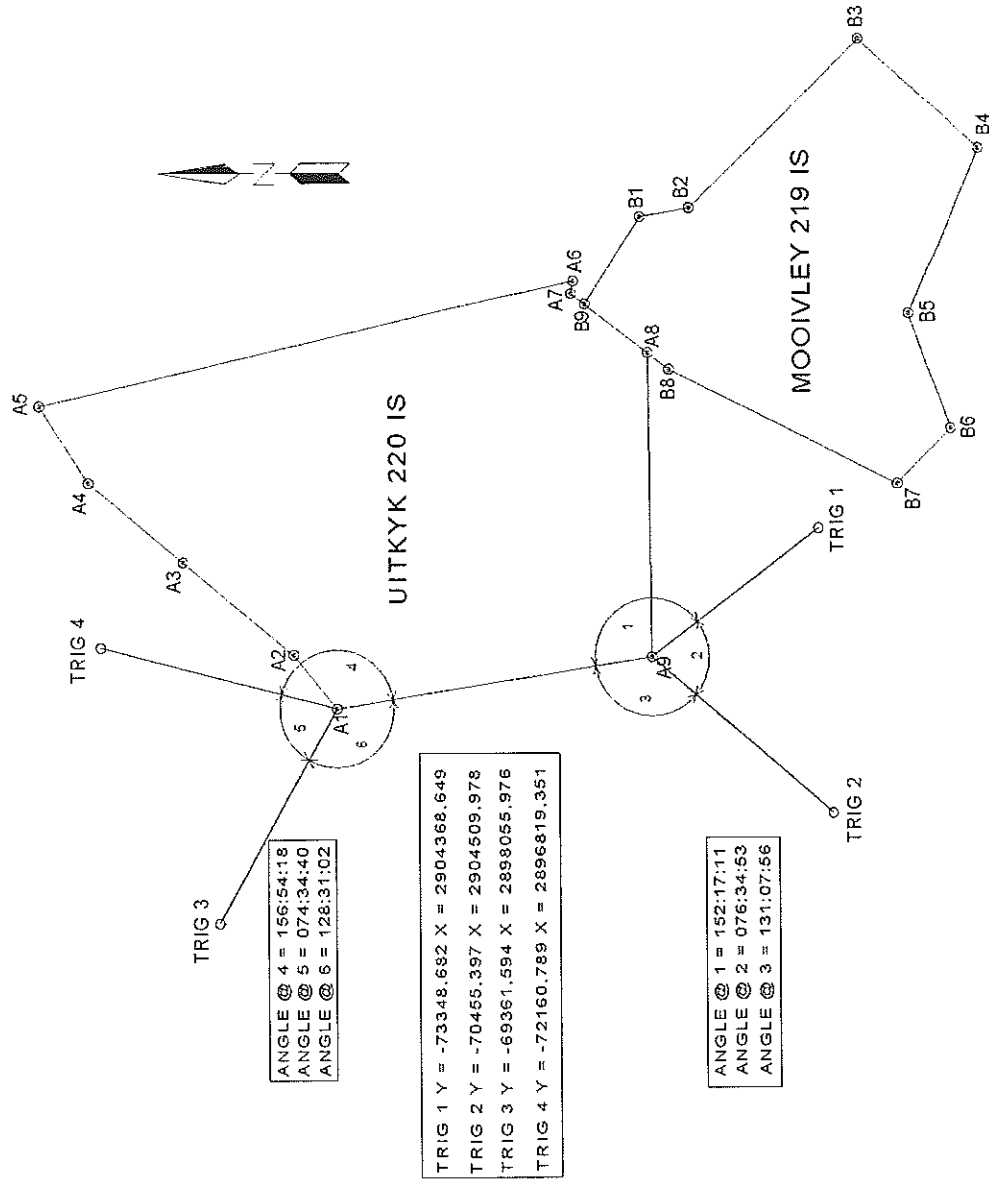
	SIDES		ANGLES	CO ORDINATES - WGS84/29	
	METRES			Y	X
B1 - B2	523,064	B1	133:19:5	B1	-76481,895 2902812,900
B2 - B3	2478,652	B2	213:42:3	B2	-76570,410 2903328,420
B3 - B4	1661,219	B3	94:29:48	B3	-78275,094 2905127,800
B4 - B5	1821,949	B4	108:29:5	B4	-77162,416 2906361,330
B5 - B6	1240,342	B5	233:12:2	B5	-75492,245 2905633,300
B6 - B7	778,039	B6	116:07:4	B6	-74324,162 2906050,470
B7 - B8	2665,613	B7	108:17:6	B7	-73766,551 2905507,870
B8 - B9	1107,473	B8	168:52:2	B8	-74931,663 2903110,370
B9 - B1	1060,032	B9	93:27:22	B9	-75598,870 2902226,440



SCALE : 1 : 40 000

THE FIGURE B1, B2, B3, B4, B5, B6, B7, B8, B9 AND B1  
REPRESENTS AN AREA OF 994,9419 ha WHICH REPRESENTS  
THE FARM MOOIVLEY 219 IS

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PLAN - NOT TO SCALE