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

DATE: 17 October 2003 TOTAL MARKS: **100**
TIME: 12:30 to 15:30 (3 Hours) TO PASS: **50**

SURVEY III

Note:
(1) Work to 1 second of arc and 0,001m,
(2) **All steps** and **checks** must be shown,
(3) Logs and functions must be shown to six (6) decimal places,
(4) Sketch are not drawn to scale and attached herewith,
(5) The make and model number of your calculator **must** be written on the front cover of your answer book,

QUESTION 1

The following information is available to determine the co-ordinates of beacons X, Y and Z. These three beacons (borehole collars) share the same collar elevation, Reef was intersected in the boreholes to determine the dip and strike direction of the underlying ore body.

Co-ordinates				
Point	Y	X	Elevation	Reef intersection below collar
A	674,430	-607,617		
B	477,630	-521,762		
C	477,630	245,405		
D	536,488	336,159		
E	1 179,587	336,159		
X				220,638m
Y				245,919m
Z			1 296,340	0,000m

Reduced Field Book data	
Angle AXB	37° 41' 03"
Angle BXY	114° 57" 30"
Angle XYC	114° 47' 39"
Angle CYD	27° 51' 20"
Angle XYZ	71° 16' 16"
Angle YZE	128° 51' 28"

Calculate the co-ordinates of X, Y and Z respectively, the strike direction and true dip of the reef plane intersected.

[100 marks]

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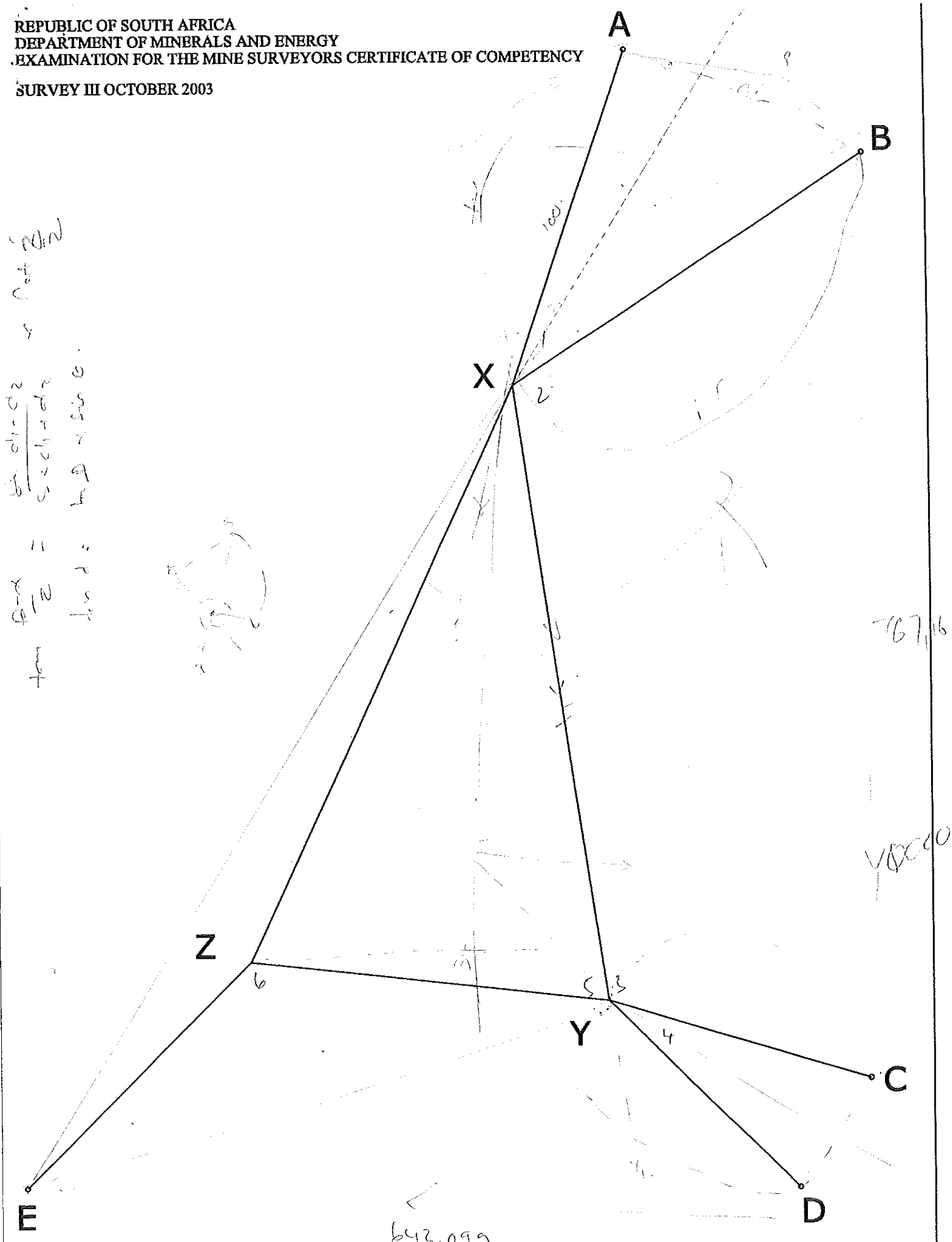
SURVEY III OCTOBER 2003



Sketch not to scale