AQA

A S S E S S M E N T and

Q U A L I F I C A T I O N S

A L L I A N C E

Free-Standing Mathematics Qualification

Working in 2 and 3 Dimensions 6982/2

Mark Scheme

2007 examination - June series

Mark schemes are prepared by the Principal Examiner and considered, together with the relevant questions, by a panel of subject teachers. This mark scheme includes any amendments made at the standardisation meeting attended by all examiners and is the scheme which was used by them in this examination. The standardisation meeting ensures that the mark scheme covers the candidates' responses to questions and that every examiner understands and applies it in the same correct way. As preparation for the standardisation meeting each examiner analyses a number of candidates' scripts: alternative answers not already covered by the mark scheme are discussed at the meeting and legislated for. If, after this meeting, examiners encounter unusual answers which have not been discussed at the meeting they are required to refer these to the Principal Examiner.

It must be stressed that a mark scheme is a working document, in many cases further developed and expanded on the basis of candidates' reactions to a particular paper. Assumptions about future mark schemes on the basis of one year's document should be avoided; whilst the guiding principles of assessment remain constant, details will change, depending on the content of a particular examination paper.

Key to mark scheme and abbreviations used in marking

M	mark is for method		
m or dM	mark is dependent on one or more M marks and is for method		
A	mark is dependent on M or m marks and is for accuracy		
B	mark is independent of M or m marks and is for method and accuracy		
E	mark is for explanation		
√or ft or F	follow through from previous incorrect result	MC	mis-copy
CAO	correct answer only	MR	mis-read
CSO	correct solution only	RA	required accuracy
AWFW	anything which falls within	FW	further work
AWRT	anything which rounds to	ISW	ignore subsequent work
ACF	any correct form	FIW	from incorrect work
AG	answer given	BOD	given benefit of doubt
SC	special case	WR	work replaced by candidate
OE	or equivalent	FB	formulae book
A2,1	2 or 1 (or 0) accuracy marks	NOS	not on scheme
$-x$ EE	deduct x marks for each error	G	graph
NMS	no method shown	c	candidate
PI	possibly implied	sf	significant figure(s)
SCA	substantially correct approach	dp	decimal place(s)

No Method Shown

Where the question specifically requires a particular method to be used, we must usually see evidence of use of this method for any marks to be awarded. However, there are situations in some units where part marks would be appropriate, particularly when similar techniques are involved. Your Principal Examiner will alert you to these and details will be provided on the mark scheme.

Where the answer can be reasonably obtained without showing working and it is very unlikely that the correct answer can be obtained by using an incorrect method, we must award **full marks**. However, the obvious penalty to candidates showing no working is that incorrect answers, however close, earn **no marks**.

Where a question asks the candidate to state or write down a result, no method need be shown for full marks.

Where the permitted calculator has functions which reasonably allow the solution of the question directly, the correct answer without working earns **full marks**, unless it is given to less than the degree of accuracy accepted in the mark scheme, when it gains **no marks**.

Otherwise we require evidence of a correct method for any marks to be awarded.

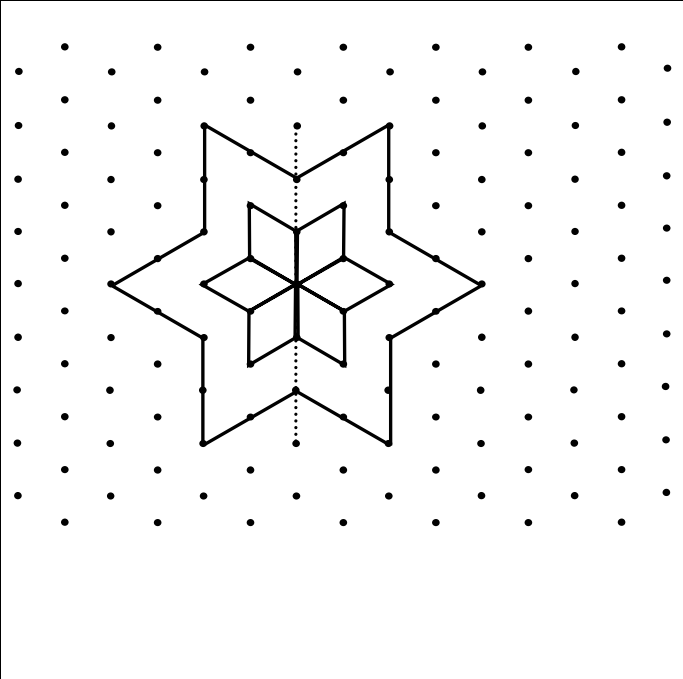June 07

Free-Standing Mathematics Qualification

Foundation Level – Working in 2 and 3 Dimensions (6982/2)

Answers and Marking Scheme

Question 1

(a)	Pattern A 6	**B1**	
	Pattern B 3	**B1**	
(b)	Pattern A 6	**B1**	
	Pattern B 0	**B1**	
(c)	Regular hexagon	**B1**	Accept hexagon
	Rhombus	**B1**	Do not accept parallelogram or kite
	TOTAL	**6**	

Question 2

		B1	One complete rhombus added correctly or inner star if no completed rhombuses
		B1	All rhombuses
		B1	Two sides of outer star added correctly
		B1	All sides of outer star
			Do not allow last B1 if there are extra lines
	TOTAL	**4**	
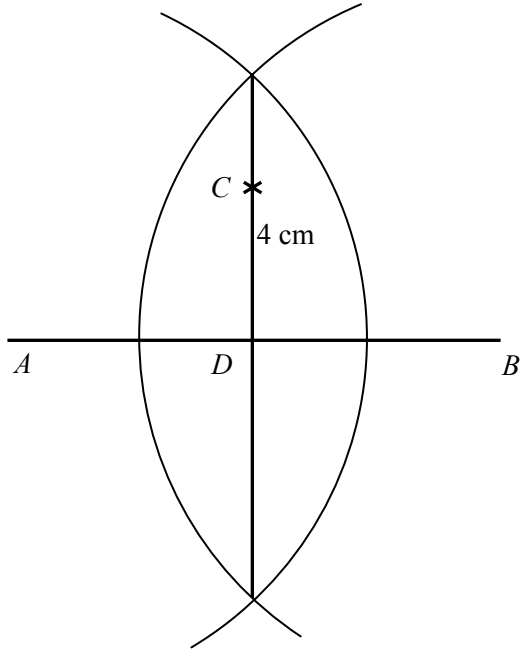
Question 3

(a)	30°	**B1**	Accuracy ±1°
(b)(i)	9.6 cm	**B1**	Accuracy ±0.1 cm Accept 96 mm Must include units
(b)(ii)	Actual length $= 9.6 \times 50$ $\quad\quad\quad = 480 \div 100$ $\quad\quad\quad = 4.8$ (m)	**M1** **M1** **A1√**	Using their answer from (b)(i). Correct use of scale. Unit conversion FT from (b)(i) Must be in metres Allow 4m 80cm
	TOTAL	**5**	

Question 4

(a)	Area $= \frac{1}{2} \times$ base $\times$ height $= \frac{1}{2} \times 2 \times 1.8$ $= 1.8$ (m^2)	**M1** **A1**	Allow for formula only Allow omission of units
(b)	Area $= \frac{1}{2} \times 10 \times 4.5$ $= 22.5$ (m^2)	**M1** **A1**	Use of correct values in formula Allow omission of units
(c)	Shaded area $= 22.5 - 4 \times 1.8$ $= 15.3$ m^2	**M1** **A1√**	Using their answers from (a) and (b) Must give correct units
	TOTAL	**6**	

Question 5

		B1	Arcs drawn from centres *A* and *B*
		B1	Perpendicular bisector
			SC1 for perpendicular bisector without construction arcs.
		B1	Position of *C* marked (with *CD* = 4 cm) Accept correctly positioned apex without *C* labelled
	TOTAL	**3**	

Question 6

(a)	Radius = 20 cm	**B1**	
	Area $= \pi r^2 = \pi \times 20^2$	**M1**	Allow use of diameter
	$= 1256.637\ldots(\text{cm}^2)$	**A1**	Allow omission of units. Accept values from 1256 to 1257.15 rounded to 2 or more sf
(b)	Volume = Area × height		
	$= 1256.637\ldots \times 75$	**M1**	Using their answer from (a) or $\pi r^2 h$
	$= 94247.779\ldots$		
	$= 94\ 200$	**A1√**	Accept values rounded to 2 or more sf
	cm^3	**B1**	For units. Accept litres (ie 94.2 litres)
	TOTAL	**6**	

Question 7

		Accuracy to ± 0.1 cm
	B1	Outer rectangle 5.4 cm by 11.2 cm
	B1	Inner rectangle 4.6 cm by 2 cm
	B1	Right angles
	B1	Inner rectangle 0.4 cm from top and 0.4 cm from sides of outer rectangle **SC1** 2 or more correct scaled measurements given but not drawn
TOTAL	**4**	

Question 8

$x = \frac{360°}{8}$	**M1**	Allow use of other methods using the sum of exterior or interior angles and isosceles triangles.
$= 45°$	**A1**	**SC1** for unsupported $45°$ or sight of $360° \div 8$
TOTAL	**2**	

Question 9

Length of promenade = 3200 m	**B1**	Conversion of units (may be implied)
Number of spaces $= 3200 \div 50$	**M1**	or alternative method eg 32×2
$= 64$	**A1**$\sqrt{}$	FT if worked sensibly after error in conversion
Number of litter bins = 65	**B1**$\sqrt{}$	
TOTAL	**4**	
TOTAL MARK FOR PAPER	**40**	