

ROC OCR CRO

ROC

CRO ROC CRO ROC CRO CRO CRO CRO

CRO ROC OCR CRO

ROC OCR CRO

ROC CRO ROC OCR CRO ROC

OCR CRO ROC DCR CRO

ROC

CRO ROC OCR CRO ROC OCR

CRO ROC CRO ROC CRO CRO CRO CRO

ROC OCR CRO ROC OCR CRO ROC OCR CRO ROC OCR CRO ROC OCR CRO ROC OCR

ROC

8 (a) Write $y = x^2 - 8x - 3$ in the form $y = (x - a)^2 + b$.

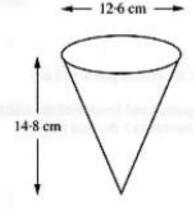


(b) Hence state the coordinates of the minimum point on the graph of y = x² - 8x - 3.



9 This cone is designed to hold chips.

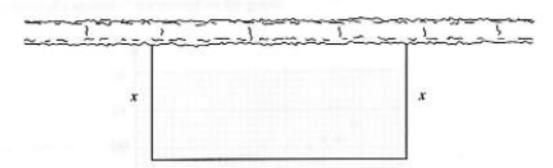
Calculate the curved surface area of this cone.



.....cm² [4]



10 Farmer George constructed a rectangular animal pen against an existing hedge. He used 80 m of wire netting.



(a) The width of the animal pen is x metres.

Write down an expression for the area of the animal pen.

(a)	m ²	[1]
(a)	m²	[]	

CRO

CRO

CRO

ROCI OCRI CRO ROCI OCRI CRO ROCI

OCRI CRO ROCI OCRI CRO ROCI OCRI

CRO

OCRI
CRO
ROCI

OCR

ROCI

OCR CRO ROCI OCR CRO ROCI OCR CRO ROCI OCR CRO ROCI OCR CROC ROCI DCR

CROCE

(b) The area of the animal pen is 482 m2.

Form an equation and hence find the width of the animal pen. Give your answer to 1 decimal place.

(b)m [4]

1000000 t 00



ROCE CROCE CROCE

CRO

OCR

CRO

CRO

ROC

CRO ROC

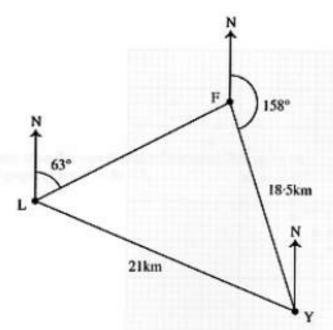
CRO

OCR CRO ROC OCR CRO

ROC OCR CRO ROC OCR CRO

ROC OCR CRO ROC OCR CRO ROC OCR CRO ROC OCR CRO ROC OCR CRO ROC

11 The bearing of a ferry (F) from a lighthouse (L) is 063°.
The bearing of a yacht (Y) from the ferry is 158°.
The yacht is 18-5 km from the ferry and 21 km from the lighthouse.



Not to scale

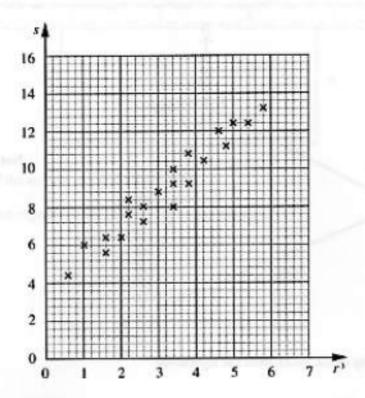
Calculate the bearing of the yacht from the lighthouse.

_____° [3]

(Turn over



12 In an experiment, the values of s and r are recorded.
It is believed that s and r are connected by an equation of the form s = ar³ + b.
The values of s against r³ are plotted on the graph.



Find approximate values for a and b.

<i>a</i> =	
b =	[3
	[3]

CROC ROCR CROC ROCR OCRC

ROCE

OCRC CROC ROCE OCRC CROC

ROCE

CROC

OCRC CROC ROCE

CROC

ROCE OCRC CROC

ROCF

ROCF

CROCE

OCRC

CROC ROCI OCRC

CROC ROCE OCR CROC ROCE OCRC CROC ROCI OCR CROC ROCE OCR CROC ROCI DCRC CROC ROCI DCR CRO ROCI OCR CROS ROCI OCRE CROC ROCI OCR CRO ROCE OCR CRO ROCI OCR CRO

towardest twee



ROCK

ROCR

CROCR CROCR CROC CROCR

CRO ROC OCR CRO OCR CRO ROC OCR CRO ROC OCE CRO ROC OCR CRO ROC OCR CRO HOC OCR CRO ROC DCR CRO ROC QCR CRO

HOC 13 The school governors considered changing the start of the school day from 9 am to 8:15 am. They decided to ask the opinion of a representative sample of the students in the school.

This table shows the number of students in each year group of the school.

Year Group	Number of students
77	153
8	161
9	157
10	123
11	96

(a)	Comment on the following idea for obtaining a random sample of students.
	Ask every 10th student as they arrive one morning.

	[1]
(b)	Suggest a method for obtaining a representative sample of 100 students.
	Explain how this could be done.
	[2]
	31

TURN OVER FOR QUESTION 14