

GCSE Mathematics

Practice Tests: Set 16

Paper 2F/3F (Calculator)

Time: 1 hour 30 minutes

You should have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser, calculator. Tracing paper may be used.

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Answer the questions in the spaces provided – *there may be more space than you need.*
- **Calculators may be used.**
- Diagrams are NOT accurately drawn, unless otherwise indicated.
- You must **show all your working out.**



Information

- The total mark for this paper is 80
- The marks for **each** question are shown in brackets – *use this as a guide as to how much time to spend on each question.*

Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.

Answer ALL questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

1 In Koko's shop

5 chocolate bars cost \$5.75

2 chocolate bars and 3 packets of sweets cost \$7.85

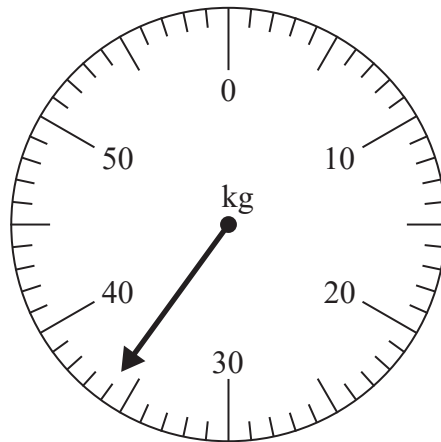
Work out the cost of one packet of sweets.

\$.....

(Total for Question 1 is 3 marks)

2 Amir is going on holiday.

He weighs his suitcase on the weighing scales at the airport.
The reading on the scale gives the weight of Amir's suitcase.



An excess luggage charge has to be paid when the weight of a suitcase is greater than 25 kg.

This charge is 7.45 euros for each kilogram over the 25 kg limit.

Work out the excess luggage charge that Amir has to pay.

..... euros

(Total for Question 2 is 3 marks)

- 3 The two-way table shows some information about the 60 noodle meals eaten in a noodle bar by each of 60 people last Friday.

Type of noodle

	Ramen	Soba	Udon	Total
Boiled	18			31
Fried		12	7	
Total			15	60

- (a) Complete the two-way table.

(3)

One of the 60 people is selected at random.

- (b) Write down the probability that this person ate Fried Udon noodles.

.....
(1)

(Total for Question 3 is 4 marks)

- 4 Zaina has booked a singer for a show.
The singer will get 94% of the total money from the ticket sales.
The cost of each ticket for the show is 32.50 dirhams.
Zaina sells 180 tickets.
Work out the amount of money the singer will get.

..... dirhams

(Total for Question 4 is 3 marks)

- 5 Nav makes bracelets using cord.
Nav has a 6 metre length of cord.
Each bracelet needs 17.5 cm of cord.

Work out the greatest number of bracelets that Nav can make.

.....
(Total for Question 5 is 3 marks)

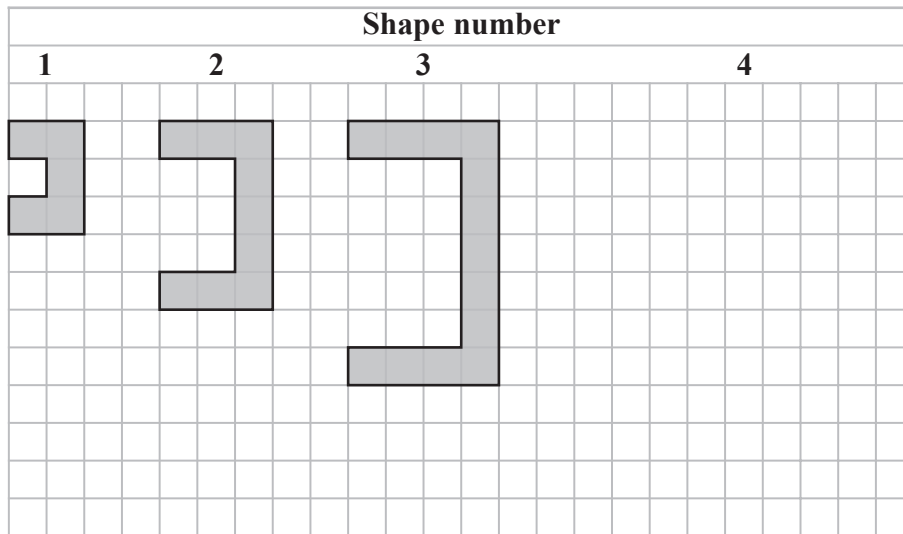
- 6 Paolo has a bag of flour.
The flour in the bag has a weight of 3 kilograms.
Paolo makes 8 pies using the flour in the bag.
3 of the pies each need 150 grams of the flour.
5 of the pies each need 180 grams of the flour.

Work out the weight of flour that remains in the bag when Paolo has made these pies.
Give your answer in grams.

..... grams

(Total for Question 6 is 3 marks)

7 A sequence of shapes is made by shading squares on a square grid.



(a) On the grid, draw Shape number 4

(1)

(b) Complete the table.

Shape number	1	2	3	4	5
Number of shaded squares	5	9	13		

(1)

(c) Find the number of shaded squares in Shape number 8

.....
(1)

(d) Explain why no shape in the sequence is made by shading exactly 50 squares.

.....
.....
(1)

(Total for Question 7 is 4 marks)

8 The diagram shows a cuboid.

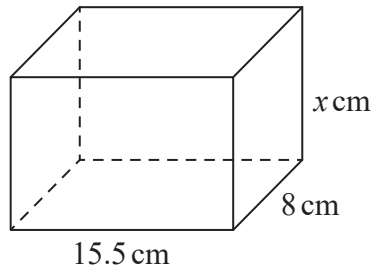


Diagram **NOT** accurately drawn

The volume of the cuboid is 806 cm^3

Work out the value of x .

$x = \dots\dots\dots$

(Total for Question 8 is 3 marks)

9 The diagram shows a trapezium.

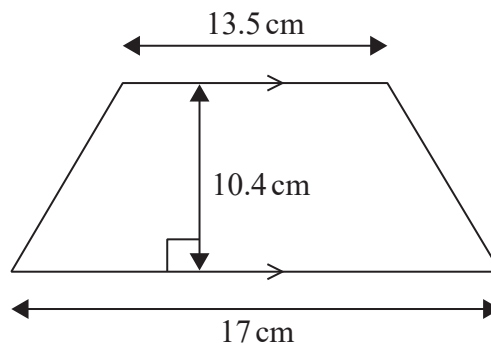


Diagram **NOT** accurately drawn

Work out the area of the trapezium.

$\dots\dots\dots \text{ cm}^2$

(Total for Question 9 is 2 marks)

10 Akiko travelled from London to Tokyo by plane.

The plane left London at 18 40 on Friday.

The plane arrived in Tokyo the next day, at 06 25 London time.

How long did the flight take?

Give your answer in hours and minutes.

..... hours minutes

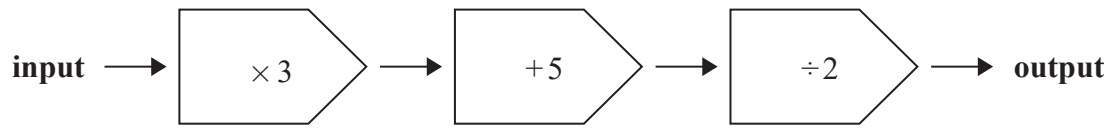
(Total for Question 10 is 2 marks)

11 Express 180 as a percentage of 750

.....%

(Total for Question 11 is 2 marks)

12 Here is a number machine.



(a) Work out the output when the input is 7

.....
(1)

(b) Work out the input when the output is 160

.....
(2)

When the input is n , the output is P .

(c) Find a formula for P in terms of n .

.....
(2)

(Total for Question 12 is 5 marks)

13 $18^2 + 15^2 - 5^3 = 4n$

Work out the value of n .

$n = \dots\dots\dots$

(Total for Question 13 is 2 marks)

14 Gladys buys a table for £465 to sell in her shop.
She sells the table for £520

- (a) Work out the percentage profit that Gladys makes from the sale of the table.
Give your answer correct to 3 significant figures.

$\dots\dots\dots\%$
(3)

Gladys has a sale in her shop.
She decreases all the normal prices by 12%
The normal price of an armchair was £550

- (b) Work out the sale price of the armchair.

£ $\dots\dots\dots$
(3)

(Total for Question 14 is 6 marks)

15 Pieter owns a currency conversion shop.
Last Monday, Pieter changed a total of 20 160 rand into a number of different currencies.

He changed $\frac{3}{10}$ of the 20 160 rand into euros.

He changed the rest of the rands into dollars, rupees and francs in the ratios 9 : 5 : 2

Pieter changed more rands into dollars than he changed into francs.

Work out how many more.

..... rand

(Total for Question 15 is 4 marks)

- 16** Elvira and Anja go on holiday to Sweden and to Finland.
In Sweden, Elvira bought some trainers for 438 Swedish krona.
In Finland, Anja bought the same type of trainers for 44.39 euros.

$$1 \text{ Swedish krona} = 0.12 \text{ dollars}$$

$$1 \text{ dollar} = 0.92 \text{ euros}$$

Work out the difference in the cost of the trainers bought by Elvira and the trainers bought by Anja.

Give your answer in dollars.

..... dollars

(Total for Question 16 is 4 marks)

17 $t = ab - c$

$$a = 1.5 \quad b = 2.4 \quad c = -5.6$$

Work out the value of t .

$t =$

(Total for Question 17 is 2 marks)

- 18 The table gives information about the speeds, in kilometres per hour, of 80 motorbikes as each pass under a bridge.

Speed (s kilometres per hour)	Frequency
$40 < s \leq 50$	10
$50 < s \leq 60$	16
$60 < s \leq 70$	19
$70 < s \leq 80$	23
$80 < s \leq 90$	12

- (a) Write down the modal class.

.....
(1)

- (b) Work out an estimate for the mean speed of the motorbikes as they pass under the bridge.
Give your answer correct to 3 significant figures.

..... kilometres per hour
(4)

(Total for Question 18 is 5 marks)

19

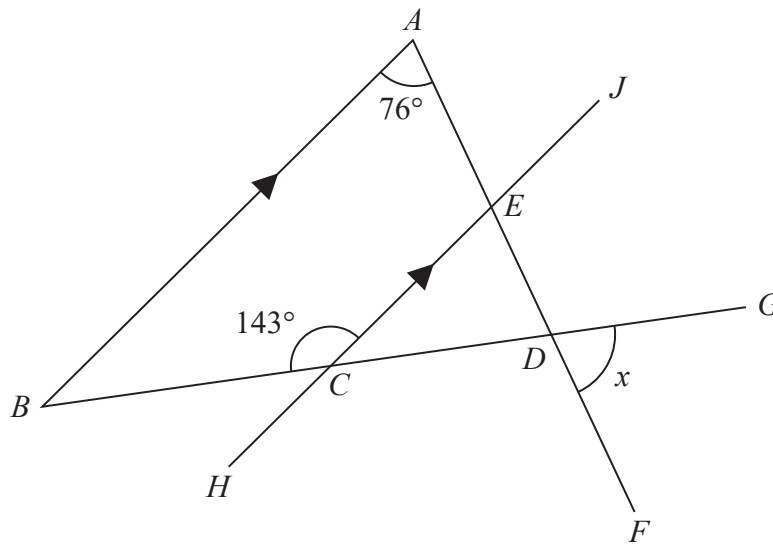


Diagram **NOT**
accurately drawn

ABD is a triangle.

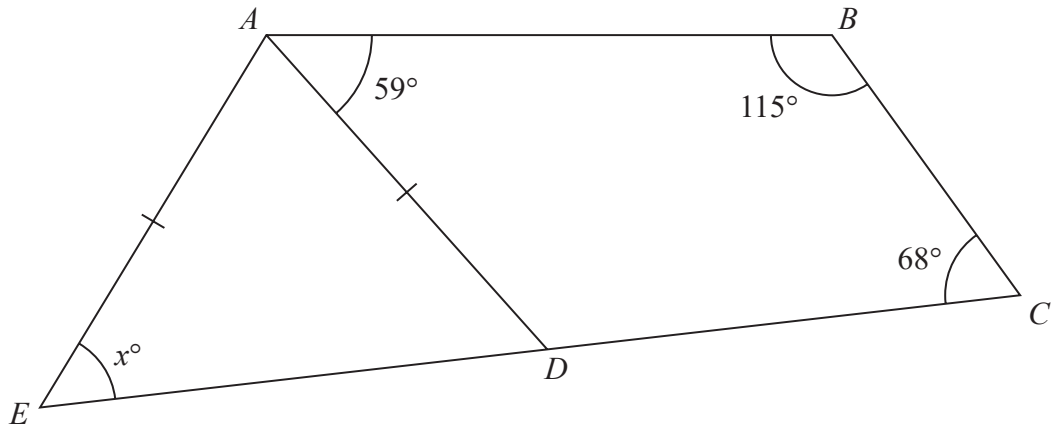
AEDF, *BCDG* and *HCEJ* are straight lines.

BA is parallel to *HCEJ*.

Work out the size of the angle marked *x*.

.....°
(Total for Question 19 is 3 marks)

20 The diagram shows quadrilateral $ABCD$ and isosceles triangle ADE , where $AE = AD$.



EDC is a straight line.

Work out the value of x .

Give a reason for each stage of your working.

$x = \dots\dots\dots$

(Total for Question 20 is 4 marks)

- 21** A train takes 6 hours 39 minutes to travel from New Delhi to Kanpur.
The train travels a distance of 429 km.

Work out the average speed of the train.

Give your answer in km/h correct to one decimal place.

..... km/h

(Total for Question 21 is 3 marks)

22 Chen invests £40 000 in a fixed-term bond for 3 years.
The fixed-term bond pays compound interest at a rate of 3.5% each year.

- (a) Work out the value of Chen's investment at the end of 3 years.
Give your answer to the nearest £.

£.....
(3)

Wang invested £ P .

The value of his investment decreased by 6.5% each year.

At the end of the first year, the value of Wang's investment was £30 481.

- (b) Work out the value of P .

$P =$
(3)

(Total for Question 22 is 6 marks)

23 The diagram shows a right-angled triangle.

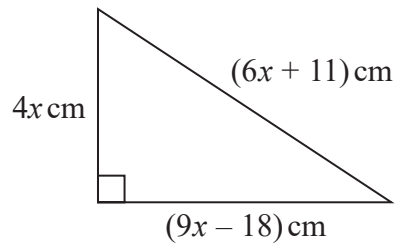


Diagram **NOT**
accurately drawn

The perimeter of the triangle is 126 cm.

Work out the area of the triangle.

..... cm^2

(Total for Question 23 is 4 marks)

TOTAL FOR PAPER IS 80 MARKS

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