GCSE Mathematics Practice Tests: Set 15
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   Find the cube root of 5832

....

(Total for Question 1 is 1 mark)

2   Write these fractions in order of size.
Start with the smallest fraction.

$$\frac{3}{4} \qquad \frac{2}{5} \qquad \frac{7}{15} \qquad \frac{2}{3}$$

....

(Total for Question 2 is 2 marks)

3   Write 36 as a fraction of 96
Give your fraction in its simplest form.

....

(Total for Question 3 is 2 marks)

4   Find the lowest common multiple (LCM) of 20 and 35

....
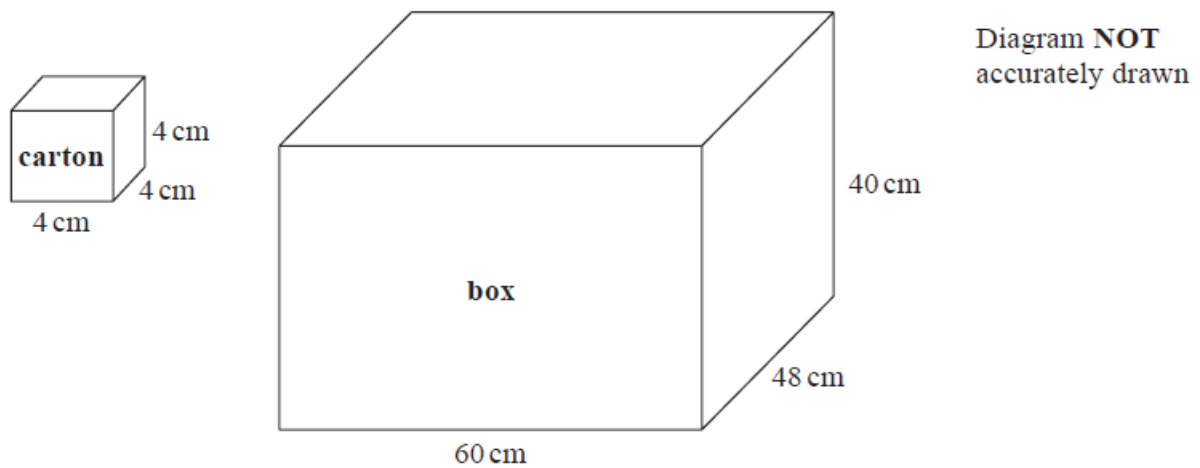
(Total for Question 4 is 2 marks)

5   Candles cost £3.05 each.
Theo has £30 to spend on candles.
He buys as many candles as he can for £30

Work out how much change Theo should get.

£...

(Total for Question 5 is 3 marks)

6   A box is to be filled with cartons.

Diagram **NOT** accurately drawn

Each carton is a cube that measures 4 cm by 4 cm by 4 cm.
The box is a cuboid that measures 60 cm by 48 cm by 40 cm.

Work out the number of cartons that can completely fill the box.

…..

(Total for Question 6 is 3 marks)

7 Here is a diagram of a trapezium.

6 cm

4 cm

10 cm
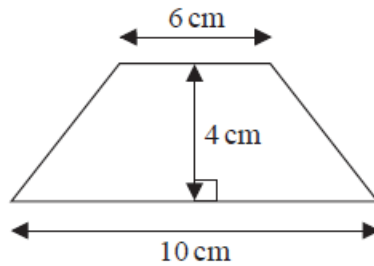
Diagram **NOT** accurately drawn

Work out the area of the trapezium.

.... cm^2

(Total for Question 7 is 2 marks)

8 There are 32 children in a nursery.

Sandeep buys 5 boxes of balloons.
There are 25 balloons in each box.

Sandeep shares the balloons equally between the 32 children so that each child gets as many balloons as possible.

Work out the number of balloons that are not shared between the 32 children.

....

(Total for Question 8 is 4 marks)

9   Freda is playing a car racing game on her computer.

She sets up her computer so that her car completes each lap in the same number of seconds.
Her car completes 3 laps in 72 seconds.

To win the game, Freda has to complete 68 laps in less than half an hour.

Does Freda win the game?
Give a reason for your answer.

(Total for Question 9 is 4 marks)

10 There are 150 people at an international conference.

These 150 people were each asked to say what their main method of transport was to get to the conference.

The two-way table shows some information about these people and their answers.

	bus	train	plane	total
men		15		80
women	17			
total	29	43		150

(*a*) Complete the two‑way table.

(3)

One of the men from these 150 people is selected at random.

(*b*) Write down the probability that this man's main method of transport was train.

....

(1)

(Total for Question 10 is 4 marks)

11 The following rule is used to work out the total cost, in euros, of hiring a room.

> Total cost = 9 euros for each hour plus 20 euros

Paolo hires the room for 5 hours.

(*a*) Work out the total cost.

.... euros

(2)

Agathe also hires the room.
The total cost is 164 euros.

(*b*) For how many hours does Agathe hire the room?

.... hours

(3)

The total cost of hiring the room for *n* hours is *T* euros.

(*c*) Write down a formula for *T* in terms of *n*.

....

(Total for Question 11 is 7 marks)

12 Here are the first five terms of a number sequence.

$$1 \qquad 3 \qquad 9 \qquad 27 \qquad 81$$

(*a*) Find the next term of this sequence.

....
(1)

(*b*) Explain how you found this term.

....

....
(1)

The 9th term of this number sequence is 6561

(*c*) Find the 10th term of this sequence.

....
(Total for Question 12 is 3 marks)

13 (*a*) Write 2.46×10^6 as an ordinary number.

....
(1)

(*b*) Write 0.000 74 in standard form.

....
(1)

(*c*) Work out $(5.6 \times 10^6) + (2.3 \times 10^5)$
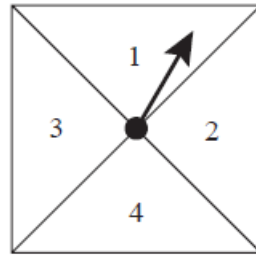
....
(Total for Question 13 is 4 marks)

14 Here are two fair spinners.
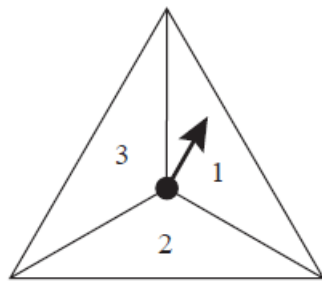
Spinner A   Spinner B

Chanthira spins each spinner once.

She adds together the number that spinner **A** lands on and the number that spinner **B** lands on to find the score.

(*a*) Complete the table to show all possible scores.
Three scores have been done for you.

Spinner **B**

		1	2	3	4
	1	2	3		
Spinner **A**	**2**	3			
	3				

(2)

(*b*) Find the probability that the score will be 4 or less.

....

(2)

Chanthira now spins both spinners together 84 times.

(*c*) Find an estimate for the number of times that spinner **A** and spinner **B** land on the same number.

…..

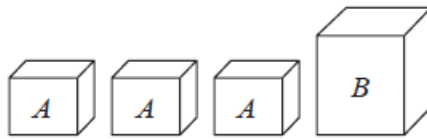**(Total for Question 14 is 6 marks)**

15

Diagram **NOT** accurately drawn

The diagram shows four parcels.
The total weight of the four parcels is 8.3 kg.

The weight of the parcel labelled *B* is 3.2 kg.
Each of the three parcels labelled *A* have the same weight.

(*a*) Work out the weight of each of the parcels labelled *A*.

.... kg

(2)

Here are another three parcels.

Diagram **NOT** accurately drawn

The total weight of the three parcels is 9.45 kg.

Each of the two parcels labelled *D* have the same weight.

The weight of each parcel labelled *D* is 3× the weight of the parcel labelled *C*.

(*b*) Work out the weight of the parcel labelled *C*.

.... kg

(Total for Question 15 is 4 marks)

16
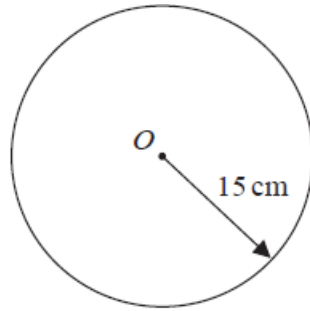

Diagram **NOT** accurately drawn

The diagram shows a circle, centre O, with radius 15 cm.

Work out the area of the circle.
Give your answer in cm^2 correct to the nearest whole number.

.... cm^2

(Total for Question 16 is 2 marks)

17 Alexa has five cards.
Each card has a number on it.

The table gives information about the numbers on the five cards.

Total	Median	Mode	Range
45	8	5	10

Using the information in the table, complete each card by writing its number on it.

(Total for Question 17 is 3 marks)

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18 Harold bought an antique clock for £1200
The clock increased in value by 8% per year.

Find the value of the clock exactly 3 years after Harold bought the clock.
Give your answer correct to the nearest £.

£...

(Total for Question 18 is 3 marks)

---

19 Write 880 as a product of powers of its prime factors.
Show your working clearly.

....

(Total for Question 19 is 3 marks)

20 The diagram shows a trapezium *ABCD* in which *AB* and *DC* are parallel.
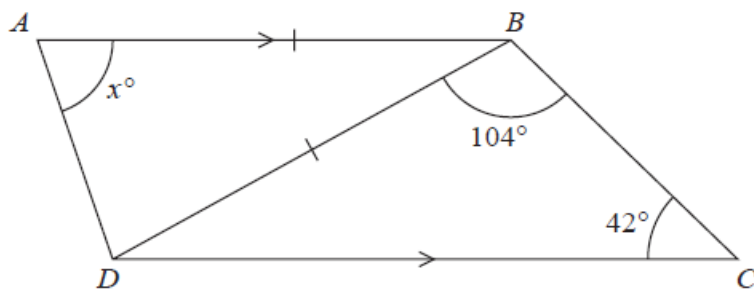

Diagram **NOT** accurately drawn

AB = DB

Work out the value of *x*.
Give a reason for each stage of your working.

x = ...

(Total for Question 20 is 4 marks)

21 Alex makes 80 cakes to sell.
He makes chocolate cakes, lemon cakes and fruit cakes where

$$\text{number of chocolate cakes} : \text{number of lemon cakes} : \text{number of fruit cakes} = 3 : 2 : 5$$

Alex sells

all of the chocolate cakes

$\dfrac{3}{4}$ of the lemon cakes

$\dfrac{7}{8}$ of the fruit cakes

The profit he makes on each cake he sells is shown in the table.

Type of cake	Profit per cake he sells
chocolate	£2.00
lemon	£1.70
fruit	£2.40

Work out the total profit that Alex makes from the cakes he sells.

£...

(Total for Question 21 is 5 marks)

22 The table gives information about the length of time, in minutes, that each of 60 students took to travel to school on Monday.

Length of time (*t* minutes)	Frequency
$0 < t \leq 10$	4
$10 < t \leq 20$	10
$20 < t \leq 30$	15
$30 < t \leq 40$	25
$40 < t \leq 50$	6

Work out an estimate for the mean length of time taken by these 60 students to travel to school on Monday.

Give your answer correct to one decimal place.

.... minutes

(Total for Question 22 is 4 marks)

23 Point A has coordinates $(-3, 11)$
Point B has coordinates $(47, b)$
The midpoint of AB has coordinates $(a, -19)$

Find the value of a and the value of b.

$a =$ ....

$b =$ ....

(Total for Question 23 is 2 marks)

24 Pedro drove from Toulouse to Montpellier in 2 hours 42 minutes.
He drove at an average speed of 90 km per hour.

Janine drove from Toulouse to Montpellier along the same route as Pedro.
The journey took her 3 hours.

Work out Janine's average speed for the journey.

.... km/hour

(Total for Question 24 is 4 marks)

25 In a sale, normal prices are reduced by 30%
The sale price of a T‑shirt was 31.50 euros.

Work out the normal price of the T‑shirt.

.... euros

(Total for Question 25 is 3 marks)

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26 Alison buys 2 boxes of strawberries, box **A** and box **B**.

Box **A** contains 15 strawberries.
The strawberries in box **A** have a mean weight of 24 grams.

Box **B** contains 25 strawberries.
The strawberries in box **B** have a mean weight of 18 grams.

Alison puts all 40 strawberries into a bowl.
Work out the mean weight of the 40 strawberries.

.... grams

(Total for Question 26 is 3 marks)

TOTAL FOR PAPER IS 80 MARKS

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