

GCSE – NEW

3300U20-1

MATHEMATICS

UNIT 2:

CALCULATOR – ALLOWED

FOUNDATION TIER

TUESDAY,

20 JUNE 2017 – AFTERNOON

1 hour 30 minutes

**(plus your additional
time allowance)**

**A CALCULATOR WILL
BE REQUIRED FOR
THIS PAPER**

For Examiner's use only		
Question	Maximum Mark	Mark Awarded
1.	4	
2.	2	
3.	3	
4.	3	
5.	2	
6.	4	
7.	2	
8.	2	
9.	2	
10.	5	
11.	3	
12.	7	
13.	3	
14.	2	
15.	2	
16.	2	
17.	4	
18.	5	
19.	4	
20.	4	
Total	65	

Surname:	
Other Names:	
Centre Number:	
Candidate Number:	0

ADDITIONAL MATERIALS

A ruler, a protractor and a pair of compasses may be required.

ITEMS INCLUDED WITH QUESTION PAPER

A separate Formula List.

A separate Diagram Booklet.

A spare Diagram Booklet.

INSTRUCTIONS TO CANDIDATES

Use black ink, black ball – point pen, black felt tip or your usual method.

Write your name, centre number and candidate number in the spaces on the front cover.

Answer ALL questions.

Write your answers in the spaces provided.

If you run out of space, use the continuation pages at the back of the booklet, taking care to number the question(s) correctly.

Take π as **3.14** or use the π button on your calculator.

(Turn over)

INFORMATION FOR CANDIDATES

You should give details of your method of solution when appropriate.

Unless stated, diagrams are not drawn to scale.

Scale drawing solutions will not be acceptable where you are asked to calculate.

The number of marks is given in brackets at the end of each question or part – question.

In question 10, the assessment will take into account the quality of your linguistic and mathematical organisation, communication and accuracy in writing.

1. Fill in the missing numbers in the calculations below.

245	+		=	1023
-----	---	--	---	------

	-	263	=	642
--	---	-----	---	-----

46	×		=	1610
----	---	--	---	------

	÷	15	=	43
--	---	----	---	----

[4 marks]

(Turn over)

2. Use either the symbol $<$ or $>$ to make each statement true.

3		12
---	--	----

4		-3
---	--	----

0.25		0.5
------	--	-----

-20		-15
-----	--	-----

[2 marks]

(Turn over)

- 3. (a) (i) Look at the diagram for Question 3 (a) (i) in the separate Diagram Booklet.**

In the space provided, draw a circle of radius 5 cm.

Use the point X as the centre of your circle.

[1 mark]

- (ii) What is the length of the diameter of the circle you have drawn?**

[1 mark]

continued on the next page . . .

(Turn over)

Question 3 continued

3. (b) What is the special name given to a triangle with three equal sides?
Circle the correct answer.

Isosceles triangle
Tetrahedron
Scalene triangle
Right – angled triangle
Equilateral triangle

[1 mark]

(Turn over)

4. Matthew writes down three DIFFERENT numbers.

- One number is a square number.
- The other two numbers are factors of 20
- The sum of the three numbers is 24

What three numbers did Matthew write down?

Matthew's three numbers are _____ ,
_____ and _____

[3 marks]

(Turn over)

5. (a) Look at the diagram for Question 5 (a) in the separate Diagram Booklet.

What is the order of rotational symmetry of the shape shown?

[1 mark]

- (b) Name a 4 – sided shape with rotational symmetry of order 4

[1 mark]

(Turn over)

6. (a) Find the value of $\frac{235 \times 20^2}{17}$

Write your answer correct to the nearest **10**

[2 marks]

- (b) Find the value of $\sqrt{56 - 37} + 28$

Write your answer correct to **2** decimal places.

[2 marks]

(Turn over)

7. Find the value of $8x + 3y$
when $x = 3$ and $y = -2$

[2 marks]

(Turn over)

8. Eira believes that 4 minutes 48 seconds is less than half of 9 minutes 18 seconds.

Is Eira correct?

You must show all your working.

[2 marks]

(Turn over)

- 9. Look at the diagram for Question 9 in the separate Diagram Booklet. The diagram is a Venn diagram.**

The Venn diagram is used for showing

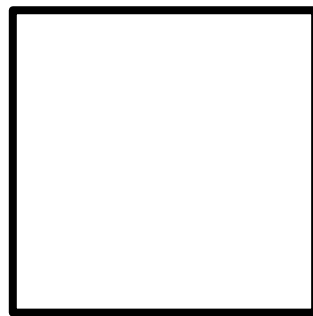
- odd numbers and**
- prime numbers.**

Place the numbers 1, 2, 3, 4 AND 5 in the Venn diagram.

[2 marks]

- 10. IN THIS QUESTION, YOU WILL BE ASSESSED ON THE QUALITY OF YOUR ORGANISATION, COMMUNICATION AND ACCURACY IN WRITING.**

Diagram NOT drawn to scale



The perimeter of a square is 56 cm.

Calculate the area of the square.

You must show all your working.

(Turn over)

(Turn over)

- 11. Look at the diagram for Question 11 in the separate Diagram Booklet.**

The diagram shows a fair 8 – sided spinner.

Seren has a fair 8 – sided spinner.

**The sections of the spinner are numbered
1, 2, 2, 3, 3, 3, 4, 4.**

- (a) Which number is the spinner most likely to land on?**

[1 mark]

- (b) Circle one term from the list below that describes the probability of the spinner landing on a 2**

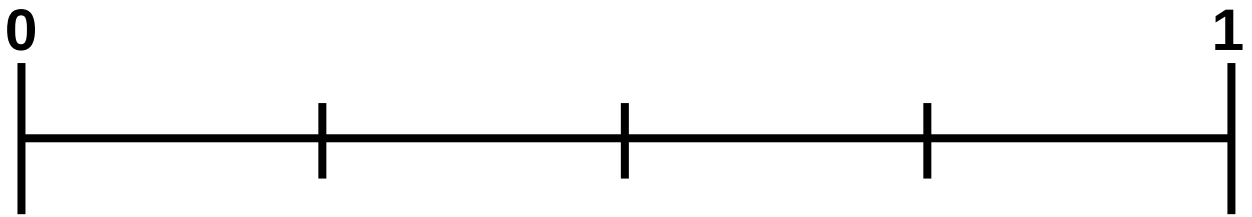
IMPOSSIBLE	UNLIKELY	EVEN CHANCE
	LIKELY	CERTAIN

[1 mark]

(Turn over)

Question 11 continued

- 11. (c) On the probability scale below,
mark with an arrow the probability
of the spinner landing on a 3**



[1 mark]

(Turn over)

12. (a) Calculate 39% of £576

[2 marks]

(b) Calculate $\frac{3}{7}$ of 100

**Give your answer correct to the
nearest whole number.**

[2 marks]

(Turn over)

Question 12 continued

12. (c) How many quarters are there in 10?

[1 mark]

(d) What FRACTION is equal to 50% of $\frac{1}{6}$?

[1 mark]

continued on the next page . . .

(Turn over)

Question 12 continued

12. (e) Circle the fraction that is a recurring decimal.

$\frac{21}{35}$	$\frac{10}{12}$	$\frac{17}{68}$	$\frac{15}{24}$	$\frac{51}{170}$
-----------------	-----------------	-----------------	-----------------	------------------

[1 mark]

(Turn over)

**13. Look at the table for Question 13
in the separate Diagram Booklet.**

**Circle either TRUE or FALSE for each
of the statements shown.**

[3 marks]

(Turn over)

14. Calculate the answer when,

**‘the largest prime number that is
a factor of 28’**

is multiplied by

**‘the smallest prime number that is
factor of 15’**

[2 marks]

(Turn over)

- 15. Look at the diagram for Question 15 in the separate Diagram Booklet.**

The diagram shows a number machine.

Using the number machine, calculate:

- (a) the OUTPUT when the INPUT is -2**

[1 mark]

- (b) the INPUT when the OUTPUT is 36**

[1 mark]

(Turn over)

16. Write down three integers, all less than 25, whose

- **range is 8, and**
- **mean is 13**

The three integers are _____ ,

_____ and _____

[2 marks]

(Turn over)

17. (a) Write down the first three terms of the sequence whose n th term is given by $2n - 5$

The first three terms are _____ ,
_____ and _____

[2 marks]

continued on the next page . . .

(Turn over)

Question 17 continued

17. (b) Write down an expression for the n th term of the following sequence.

7, 11, 15, 19, _____

[2 marks]

(Turn over)

- 18. Look at the table for Question 18 in the separate Diagram Booklet.**

A dice is thrown 50 times.

The number shown on the dice is recorded after each throw.

The table shows the results recorded.

- (a) The relative frequency of throwing a**

1 was calculated as $\frac{9}{50} = 0.18$

What was the relative frequency of throwing a 6?

Give your answer as a decimal.

[1 mark]

(Turn over)

Question 18 continued

**18. (b) The number 4 was thrown 7 times
in the first 50 throws.**

**Using THIS FACT, calculate how many
times you would expect a 4 to be thrown
when this dice is thrown 3000 times.**

[2 marks]

continued on the next page . . .

(Turn over)

Question 18 continued

- 18. (c) How many times would you expect a
4 to be thrown when a FAIR dice is thrown
3000 times?**

[2 marks]

(Turn over)

- 19. Look at the diagram for Question 19 in the separate Diagram Booklet.**

The diagram is NOT drawn to scale.

$ABCDE$ is a regular pentagon with centre O .

Calculate the size of angle X.

You must show all your working.

[illegible]

(Turn over)

[4 marks]

(Turn over)

20. Look at the diagram for Question 20 in the separate Diagram Booklet.
The diagram is NOT drawn to scale.

ABCF is a rectangle.

CDEF is a trapezium.

BD is a straight line.

***AB* = 7 cm, *BD* = 9 cm and *DE* = 3 cm.**

The perimeter of rectangle ***ABCF*** is 24 cm.

Calculate the AREA of the trapezium ***CDEF***.

You must show all your working.

[4 marks]

END OF PAPER

TOTAL 65 MARKS

(Turn over)

Question number	Additional Pages, if required. Write the question number in the left - hand margin.

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Diagram Booklet

Surname:	
Other Names:	
Centre Number:	
Candidate Number:	0

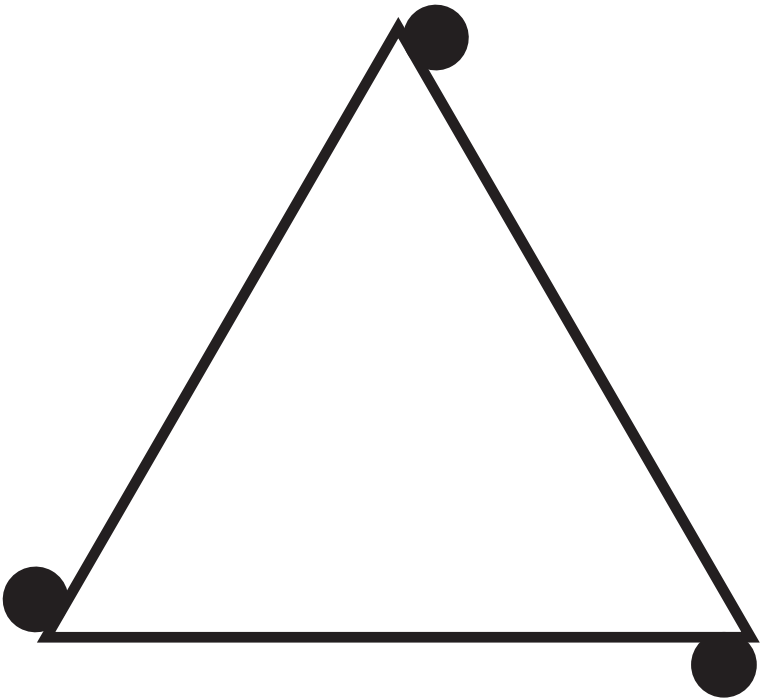
Question 3 (a) (i)

Draw a circle of radius 5 cm.

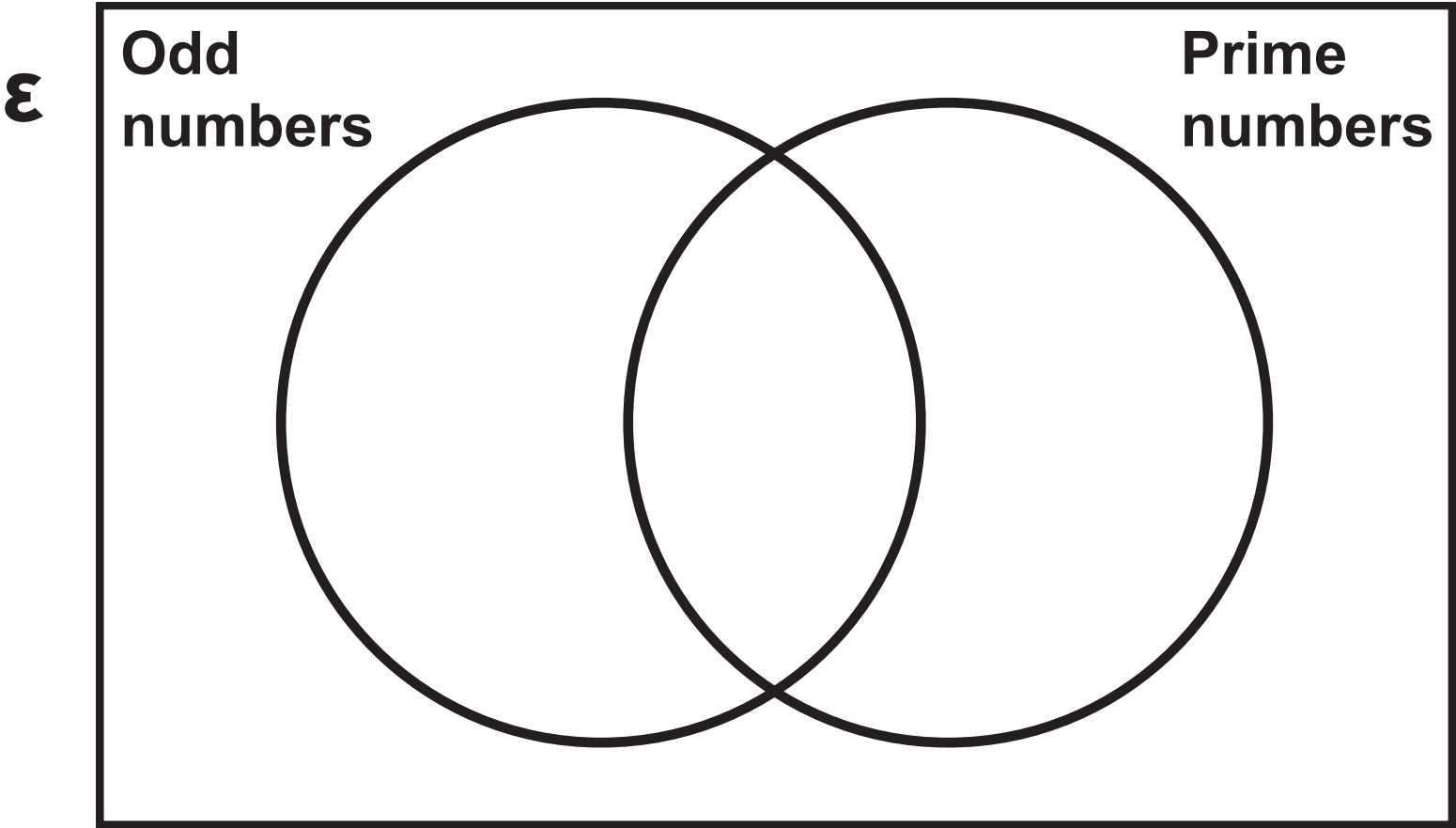
Use the point × as the centre of your circle.



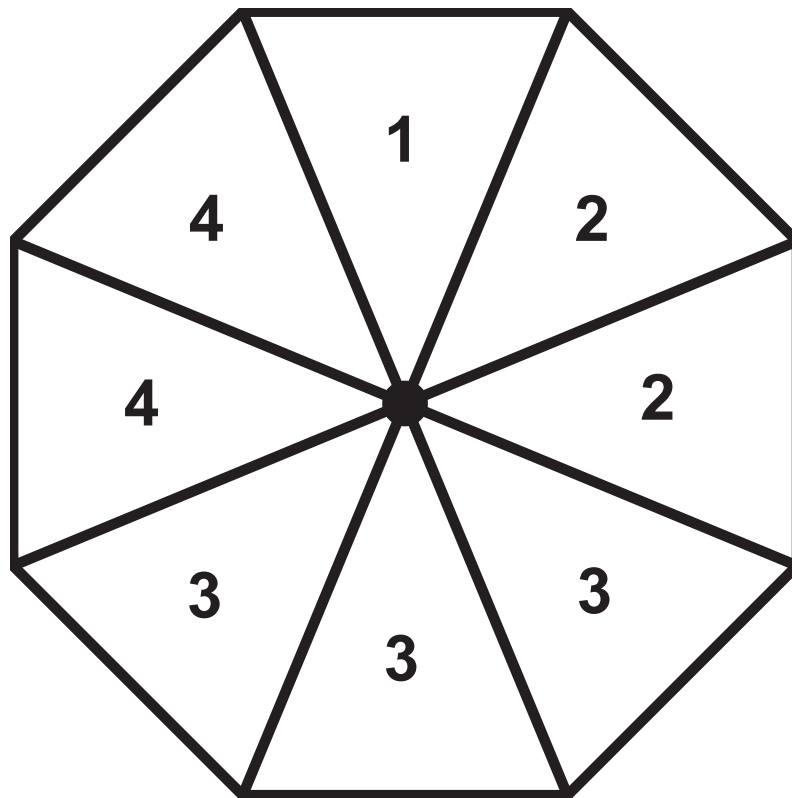
Question 5 (a)



Question 9



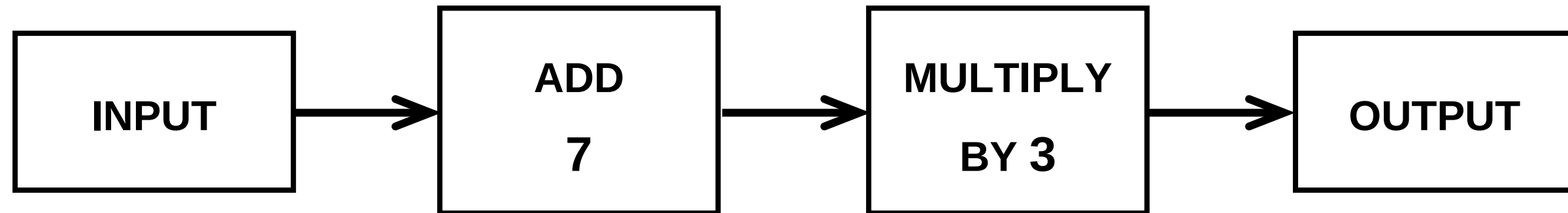
Question 11



Question 13
Table

A triangle with one angle equal to 70° could be an equilateral triangle.	TRUE	FALSE
A triangle with one angle equal to 70° could be an isosceles triangle.	TRUE	FALSE
A triangle with one angle equal to 70° could be a right – angled triangle.	TRUE	FALSE
An isosceles triangle could have one of its angles equal to 105°	TRUE	FALSE
A right – angled triangle could have one of its angles equal to 105°	TRUE	FALSE

Question 15

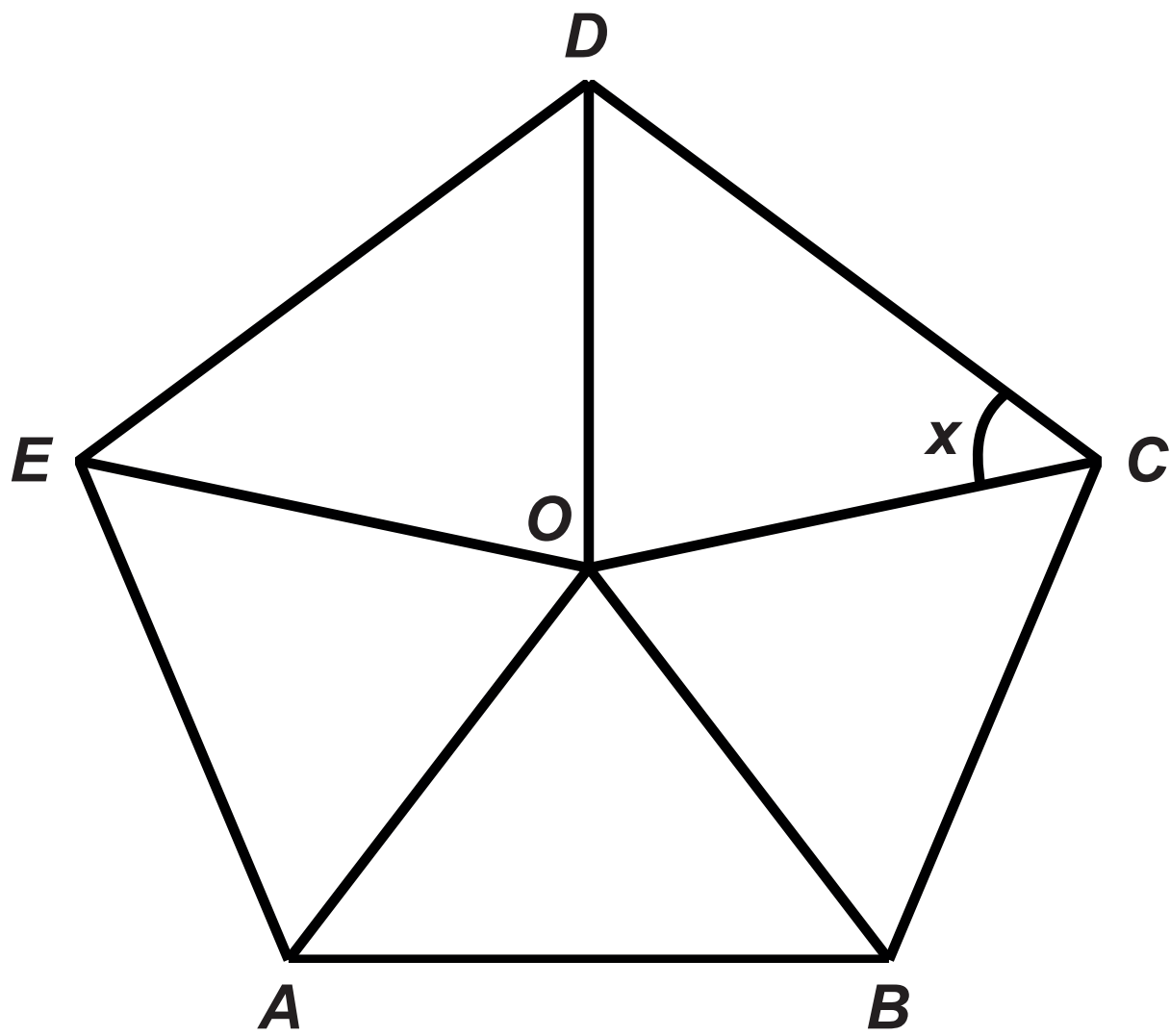


Question 18
Table

Number shown on dice	1	2	3	4	5	6
Frequency	9	7	8	7	6	13

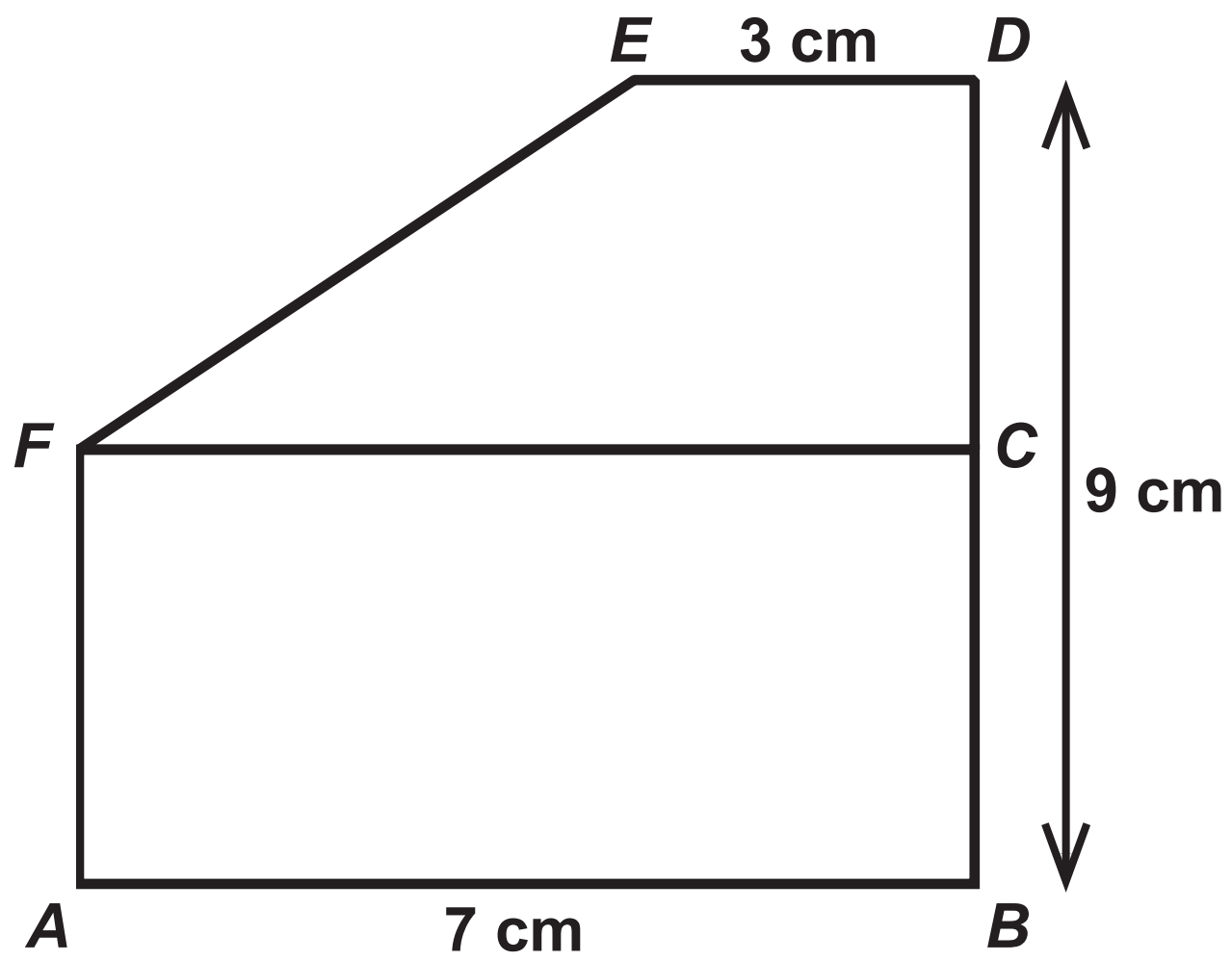
Question 19

Diagram NOT drawn to scale



Question 20

Diagram NOT drawn to scale



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3300U20-1



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Spare Diagram Booklet

Surname:	
Other Names:	
Centre Number:	
Candidate Number:	0

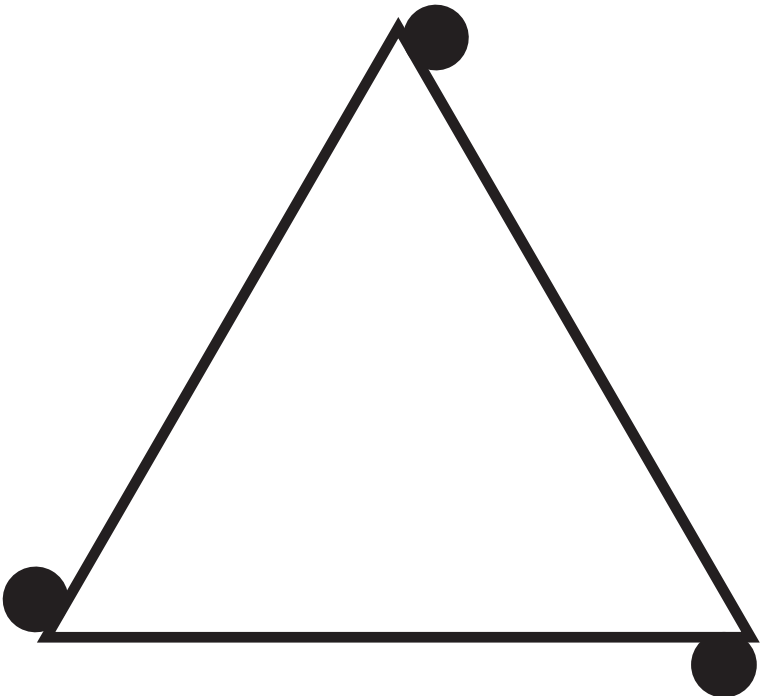
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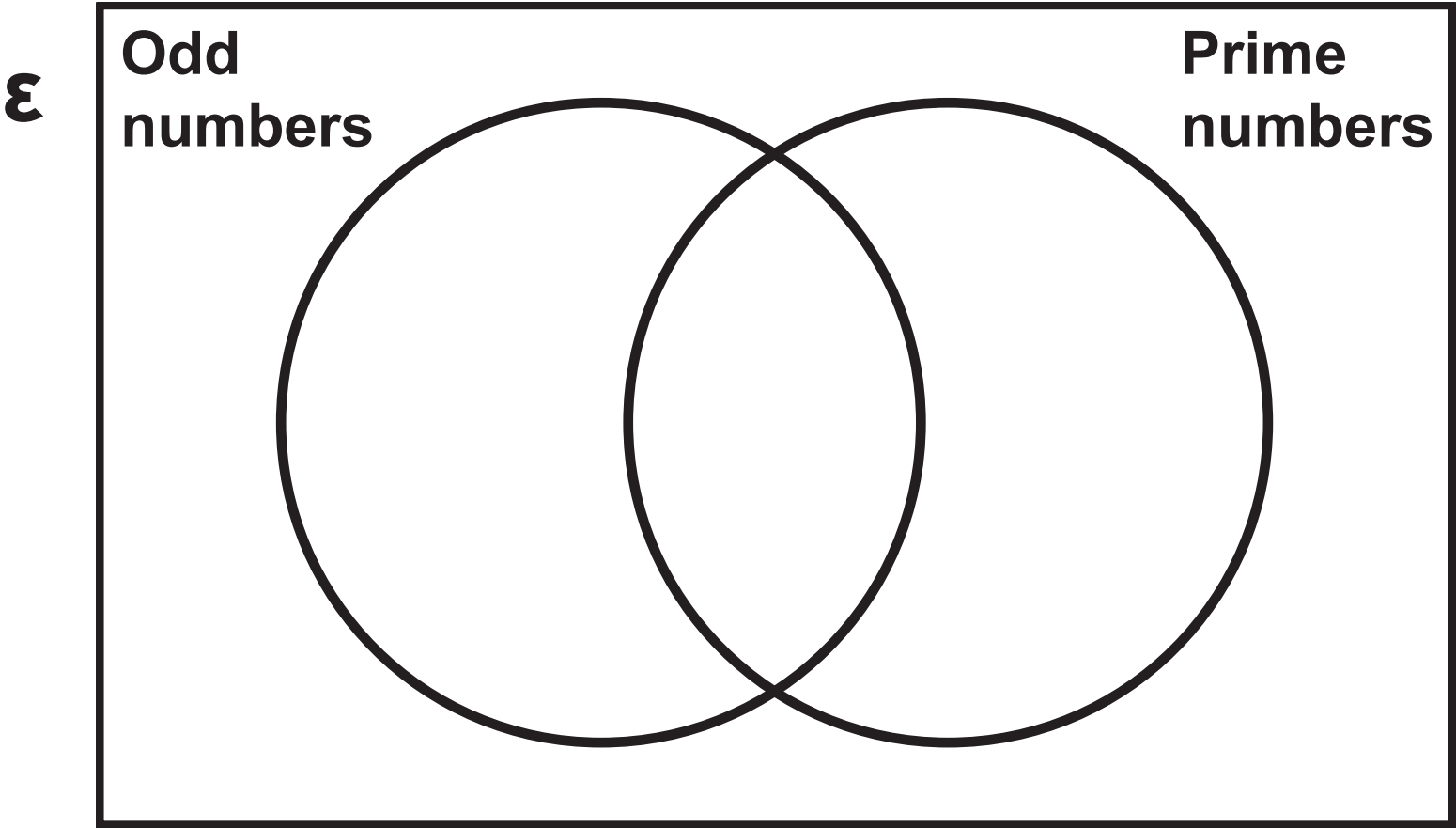
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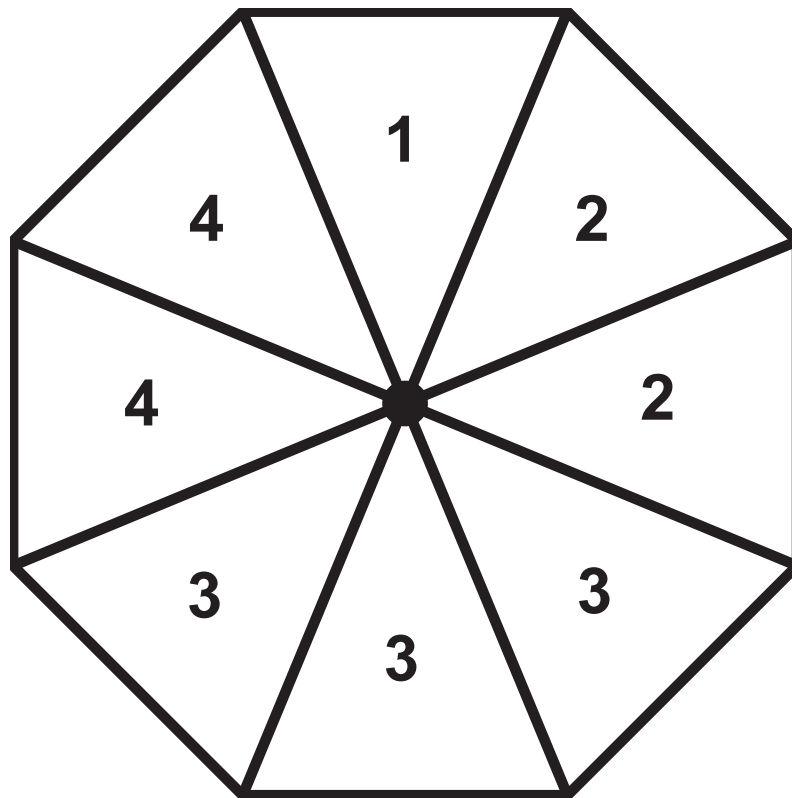
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Question 9



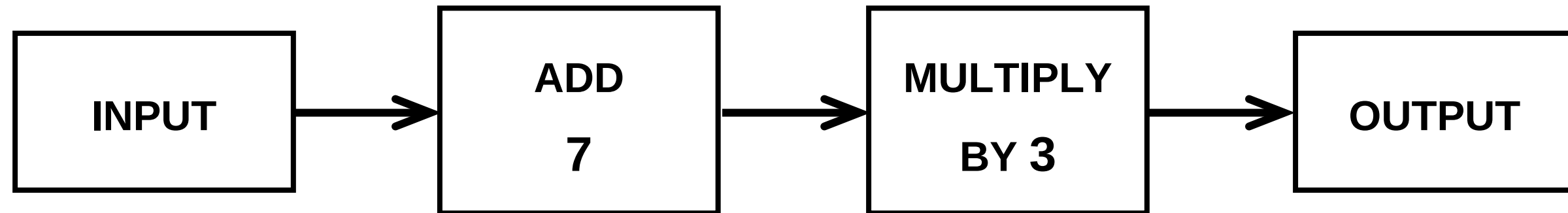
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Question 15

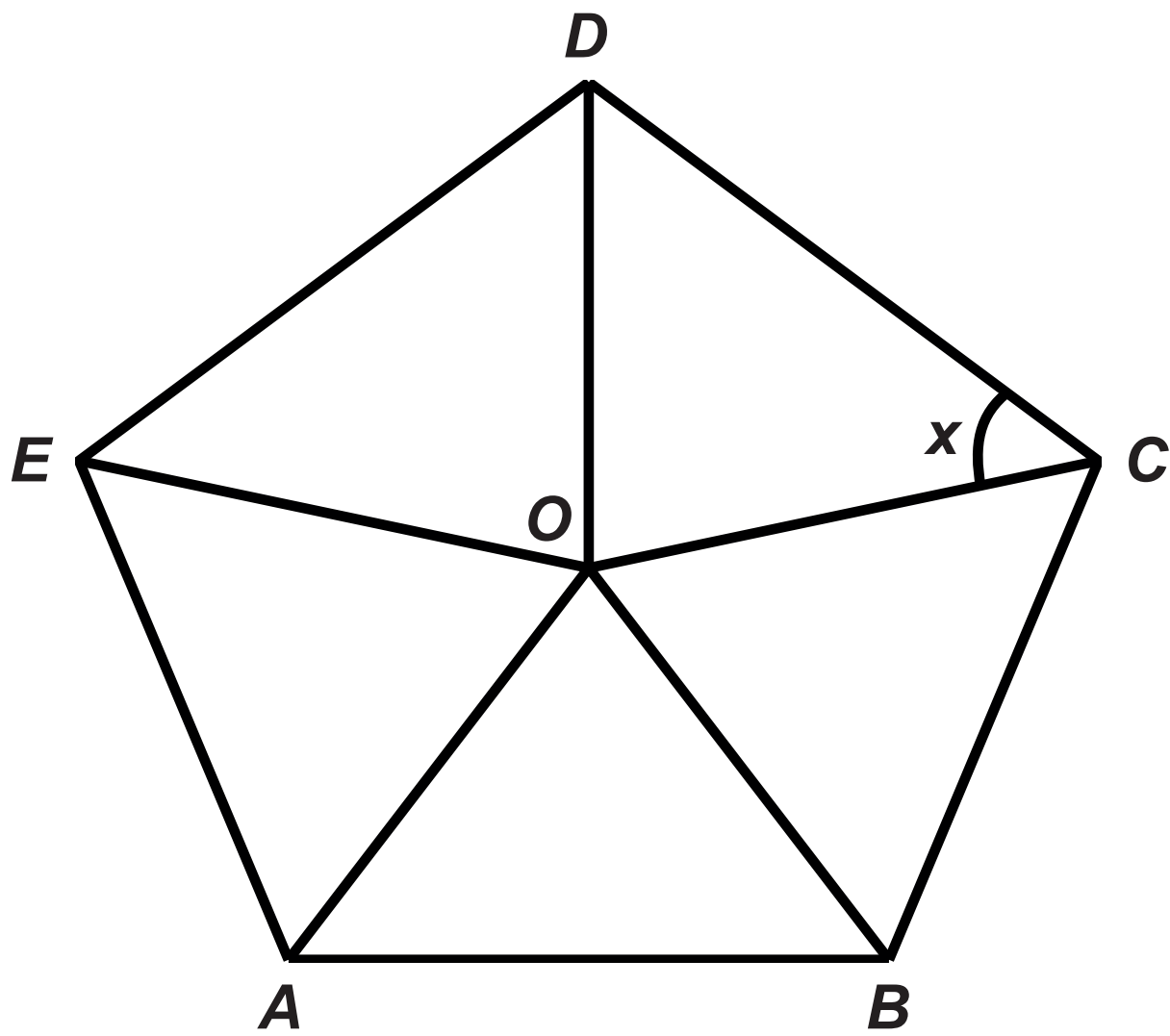


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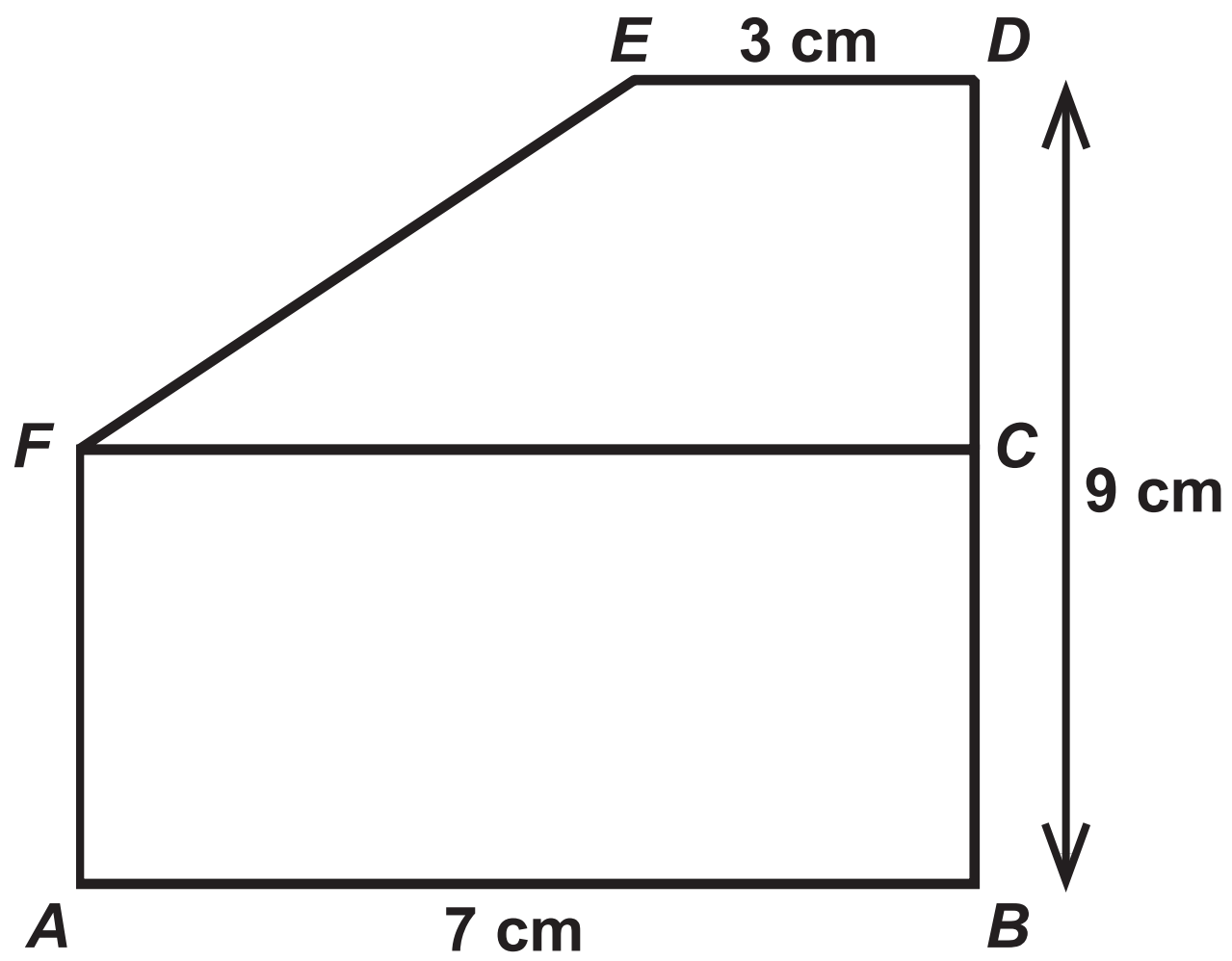
Question 19

Diagram NOT drawn to scale



Question 20

Diagram NOT drawn to scale



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and

NUMERACY

**FORMULA LIST
FOUNDATION TIER
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**You must not write on these formula
pages.**

**Anything you write on these formula
pages will gain NO credit.**

Formula List – Foundation Tier

Area of trapezium $= \frac{1}{2} (a + b) h$

