



GCSE

3300U20–1

WEDNESDAY, 13 NOVEMBER 2024 – MORNING

MATHEMATICS

**UNIT 2: CALCULATOR – ALLOWED
FOUNDATION TIER**

**1 hour 30 minutes plus your additional
time allowance**

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

Surname: _____

First name(s): _____

Centre Number: _____

Candidate Number: 0 _____

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

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.

Shapes for Question 17 (a) and Question 17 (b)

The Diagram Booklet MUST be handed in to the invigilators and sent for marking.

(Turn over)

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 additional page(s) at the back of this booklet, taking care to number the question(s) correctly.

Take π as $3 \cdot 14$ 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 7, the assessment will take into account the quality of your linguistic and mathematical organisation, communication and accuracy in writing.

(Turn over)

1. Complete the calculations below.

$$325 + \underline{\hspace{2cm}} = 1297$$

$$\underline{\hspace{2cm}} - 694 = 149$$

$$\underline{\hspace{2cm}} \times 53 = 4505$$

$$1344 \div \underline{\hspace{2cm}} = 21$$

(Turn over)

[4 marks]

2. (a) Write down, in figures, the number four hundred thousand, one hundred and eight.

[1 mark]

continued on the next page . . .

(Turn over)

Question 2 continued

- 2. (b) Stef uses each of the digits 4, 5, 9 and 3 to make a four – digit number.**

What is the largest number that she can make that is a multiple of 5?

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[1 mark]

continued on the next page . . .

(Turn over)

Question 2 continued

2. (c) Write down ALL the factors of 20

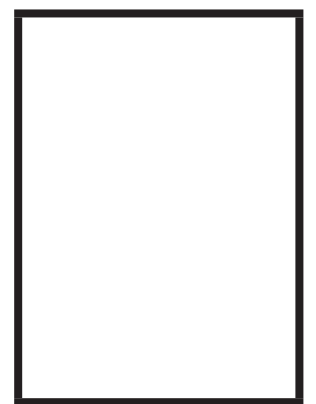
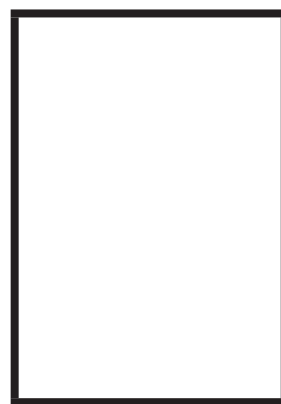
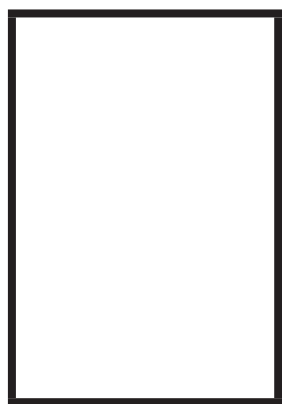
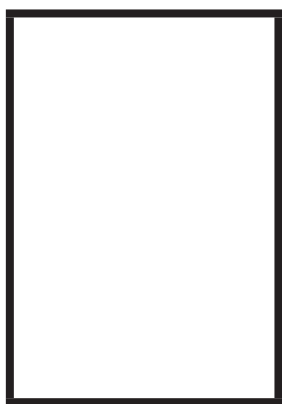
[2 marks]

(Turn over)

- 3. Cerys chooses a card at random from three different sets of four cards.**

In each part, WRITE NUMBERS ON THE FOUR CARDS to make the statement true.

- (a) It is impossible that the card Cerys chooses will be a 7**



[1 mark]

continued on the next page . . .

(Turn over)

Question 3 continued

- 3. (b) It is likely that the card Cerys chooses will be a 7**

[1 mark]

continued on the next page . . .

(Turn over)

Question 3 continued

- 3. (c) There is an even chance that Cerys chooses a number less than 7**

[1 mark]

(Turn over)

4. In the grid below:

- each column must add to 150
- each row must add to 150

Complete the grid.

83		
45		88
	93	

(Turn over)

13

[3 marks]

(Turn over)

5. Sophie says,

**“5 minutes 8 seconds is double
2 minutes 54 seconds.”**

Is Sophie correct?

YES ☐

NO ☐

**You must show working to support
your answer.**

(Turn over)

15

[2 marks]

(Turn over)

- 6. Look at the table for Question 6 in the separate Diagram Booklet. Complete the table so that each row shows an equivalent fraction, decimal and percentage.**

The first row has been completed for you.

[4 marks]

(Turn over)

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

Lewis chooses four numbers.

The largest number is $\frac{1}{3}$ of 99

The range of his numbers is 6

The mode of Lewis's numbers is an EVEN number.

Write down four numbers that Lewis could have chosen.

You must show all your working.

(Turn over)

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

(Turn over)

[3 marks + 2 marks OCW]

(Turn over)

8. Use the formula $T = 4A + 8B$ to find the value of T when $A = 45$ and $B = 19$

[2 marks]

(Turn over)

21

- 9. (a) Tomos wants to find the median of the numbers below.**

7 1 20 14 11

He writes the answer 20

EXPLAIN why Tomos's answer is incorrect.

[1 mark]

continued on the next page . . .

(Turn over)

Question 9 continued

9. (b) Ted writes down five numbers:

59 89 77 31 83

**(i) Calculate the mean of
Ted's numbers.**

[3 marks]

continued on the next page . . .

(Turn over)

Question 9 (b) continued

- 9. (b) (ii) Every number in Ted's list is decreased by 3**

What is the mean of the numbers in his new list?

[1 mark]

(Turn over)

10. Abby is asked how many quarters there are in 8

She writes $8 \div 4 = 2$

EXPLAIN why Abby's method is incorrect.

[1 mark]

(Turn over)

11. (a) Look at the diagram for Question 11 (a) in the separate Diagram Booklet. The diagram is NOT drawn to scale. The diagram shows a triangle labelled ABC .

In the diagram:

$$\text{Angle } ABC = 62^\circ$$

$$\text{Angle } CAB = x$$

Calculate the size of angle x .

$$x = \underline{\hspace{4cm}}^{\circ}$$

[2 marks]

continued on the next page . . .

(Turn over)

Question 11 continued

- 11. (b) Look at the diagram for Question 11 (b) in the separate Diagram Booklet. The diagram is NOT drawn to scale. The diagram shows a quadrilateral labelled *PQRS*.**

In the diagram:

***QRT* is a straight line**

Angle *PQR* = 115°

Angle *PSR* = 60°

Angle *TRS* = 78°

Angle *QPS* = y

Calculate the size of angle y .

(Turn over)

28

$y =$ _____^o

[3 marks]

(Turn over)

12. Owen says,

“If the longer side of a rectangle is doubled and the shorter side is halved, then the perimeter of the rectangle will stay the same.”

Is Owen correct?

SHOW CLEARLY, using an example, how you decided.

(Turn over)

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

[4 marks]

(Turn over)

13. (a) Calculate the following.

$$\frac{17}{50} \text{ of } 24 \cdot 5 + 78\% \text{ of } 103 \cdot 5$$

You must show all your working.

[2 marks]

continued on the next page . . .

(Turn over)

Question 13 continued

13. (b) Express £19.44 as a percentage of £36

[2 marks]

(Turn over)

14. Look at the diagram for Question 14 in the separate Diagram Booklet.

The diagram shows 7 playing cards.

Megan has these 7 playing cards.

She turned the cards face down.

Megan then chose a card at random and recorded the number.

(a) What is the probability that Megan recorded the number 5?

Circle your answer.

$\frac{5}{7}$	$\frac{1}{7}$	1	5	$\frac{7}{5}$
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[1 mark]

continued on the next page . . .

(Turn over)

Question 14 continued

- 14. (b) (i) What is the probability that Megan recorded a square number? Circle your answer.**

$\frac{2}{5}$	$\frac{1}{7}$	$\frac{2}{7}$	$\frac{4}{7}$	$\frac{4}{5}$
---------------	---------------	---------------	---------------	---------------

[1 mark]

continued on the next page . . .

(Turn over)

Question 14 (b) continued

14. (b) (ii) Megan chooses a card at random 91 times.

How many times would you expect Megan to record a square number?

You must show all your working.

(Turn over)

[2 marks]

(Turn over)

15. Solve each of the following equations.

(a) $3y - 5 = 19$

[2 marks]

continued on the next page . . .

(Turn over)

Question 15 continued

15. (b) $8p + 5 = 3p - 25$

[3 marks]**continued on the next page . . .****(Turn over)**

16. A bag contains 1 yellow counter and 2 pink counters.

Olga puts more yellow counters into the bag.

She takes one counter out of the bag at random.

The probability of taking a yellow counter out of the bag is $\frac{3}{4}$

How many MORE yellow counters did Olga put into the bag?

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

(Turn over)

42

**Olga put _____ more yellow
counters into the bag**

[2 marks]

(Turn over)

- 17. (a) Look at the diagram for Question 17 (a) in the separate Diagram Booklet. The diagram shows a triangle on a coordinate grid.**

Rotate the triangle through 90° clockwise, about the origin. A cut out triangle is provided for this question.

[2 marks]

- (b) Look at the diagram for Question 17 (b) in the separate Diagram Booklet. The diagram shows a triangle on a coordinate grid.**

Reflect the triangle in the line $x = -2$

A cut out triangle is provided for this question.

**[2 marks]
(Turn over)**

18. Look at the diagram for Question 18 in the separate Diagram Booklet.

The diagram is an incomplete Venn diagram.

Display the following information in the Venn diagram.

- **Universal Set $\mathcal{E}$ =**
{Integers between 1 and 7 inclusive}
- **Set A = {even numbers}**
- **Set B = {factors of 6}**
- **Set C = {prime numbers}**

(Turn over)

45

[4 marks]

END OF PAPER
TOTAL 65 MARKS

(Turn over)

Question Number	Additional pages, if required. Write the question number(s) in the left – hand margin.

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and sent for marking.**

Diagram Booklet

Surname: _____

First name(s): _____

Centre Number: _____

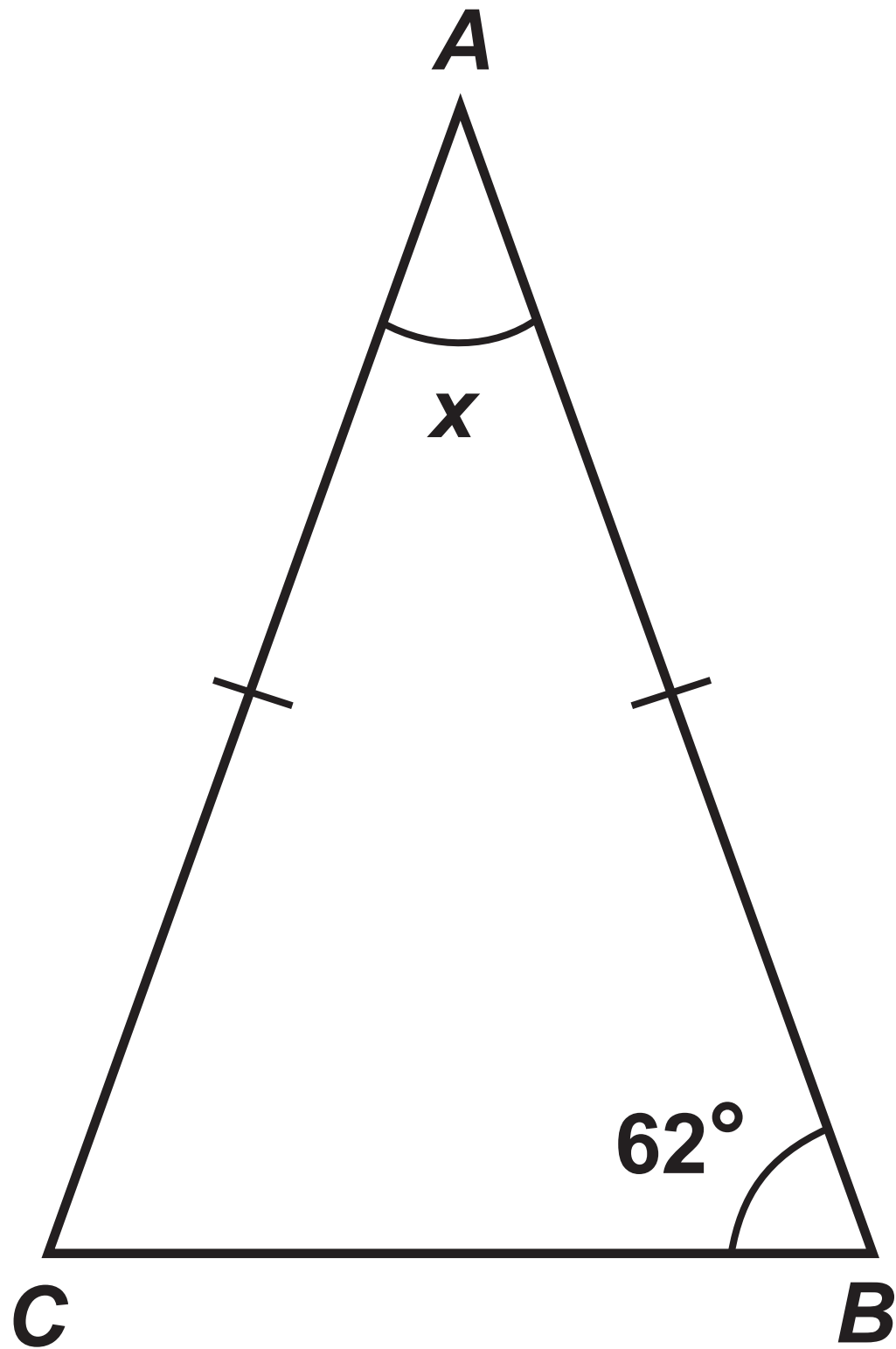
Candidate Number: 0 _____

Question 6

Fraction	Decimal	Percentage
$\frac{1}{4}$	0.25	25%
$\frac{9}{10}$	_____	_____ %
$\frac{\quad}{20}$	_____	15%

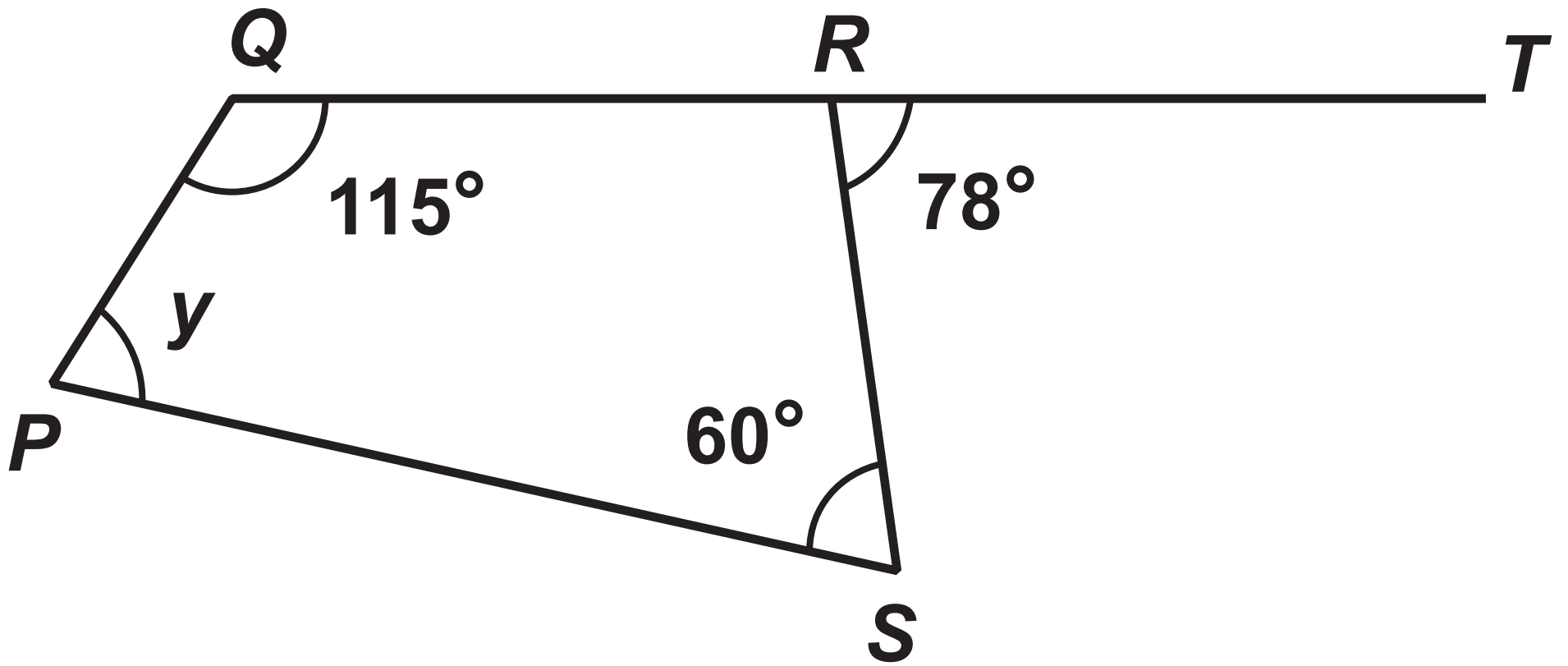
Question 11 (a)

Diagram NOT drawn to scale

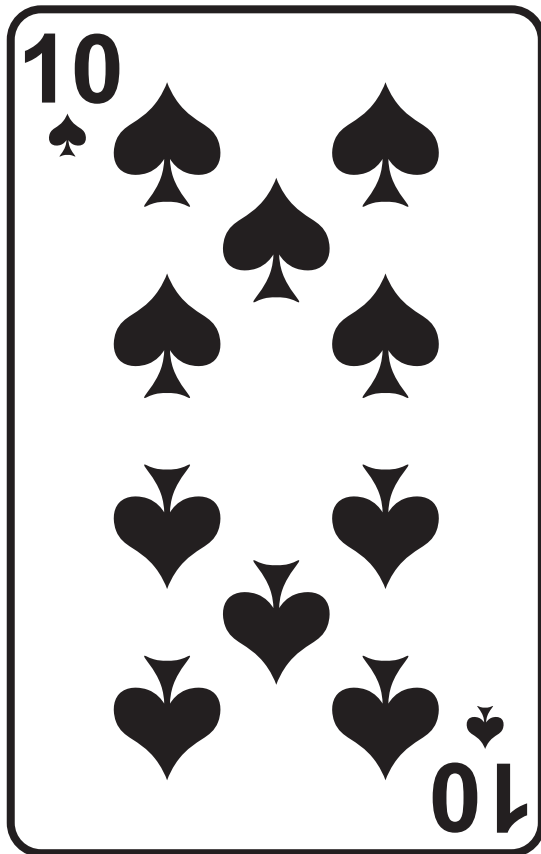
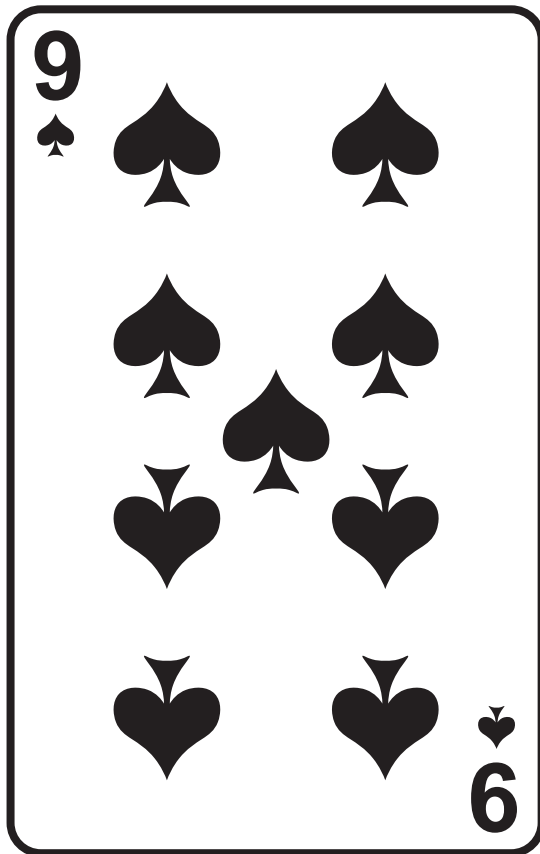
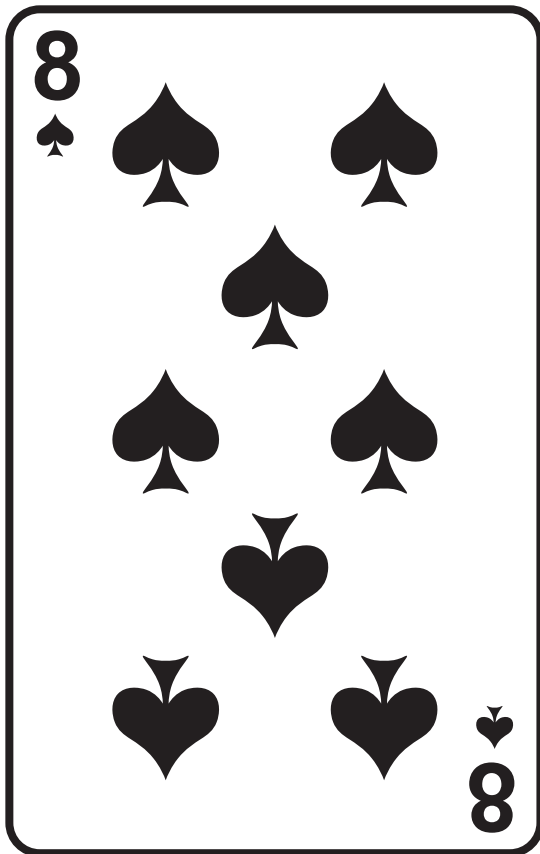
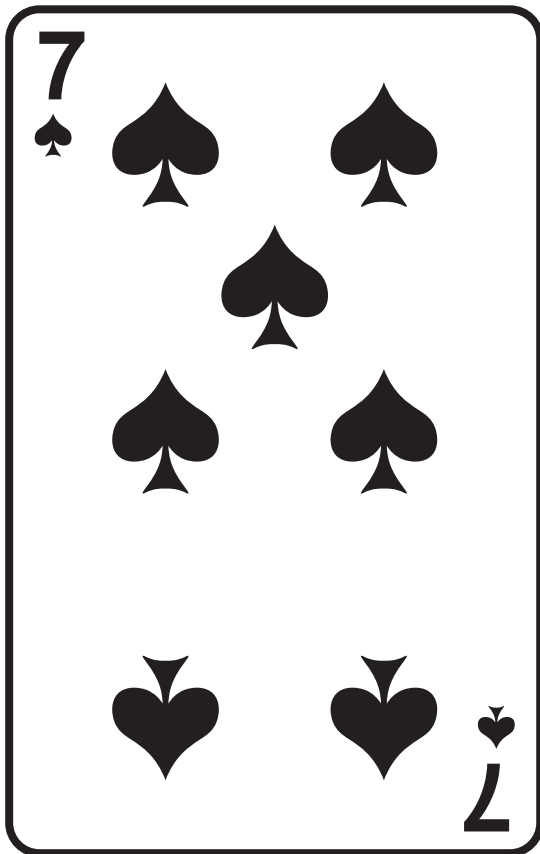
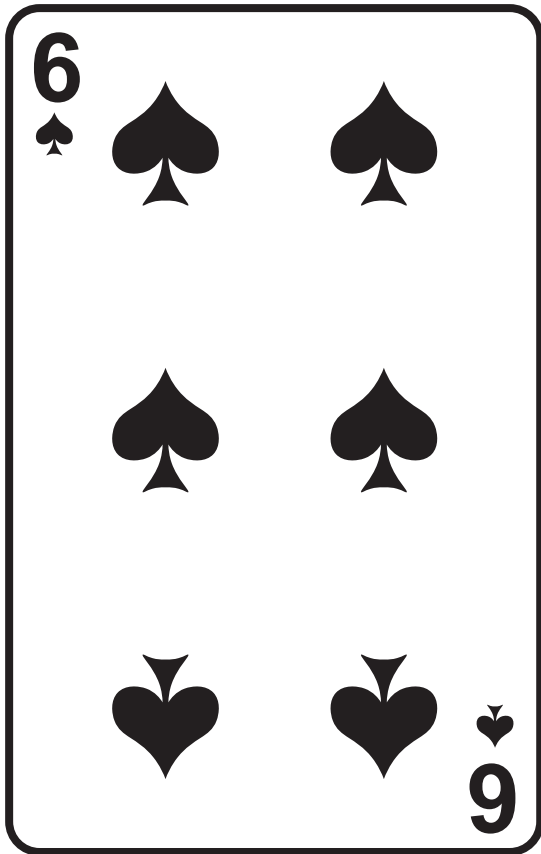
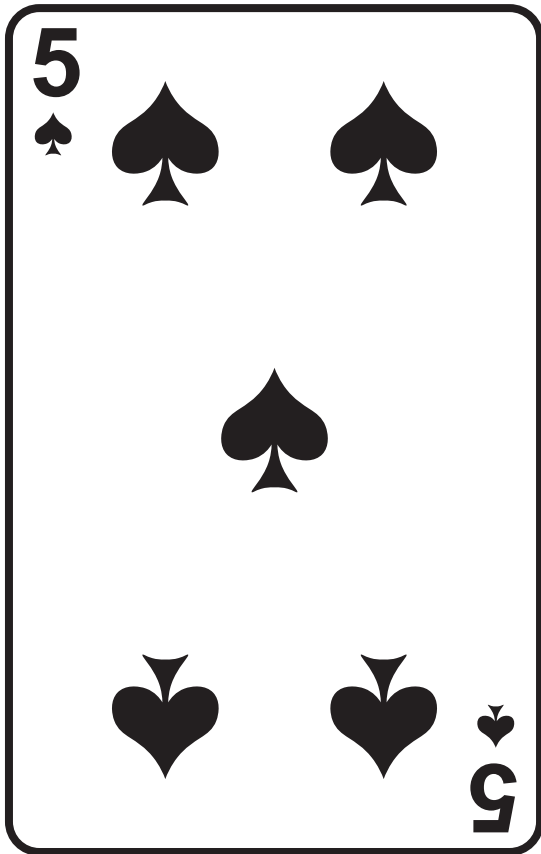
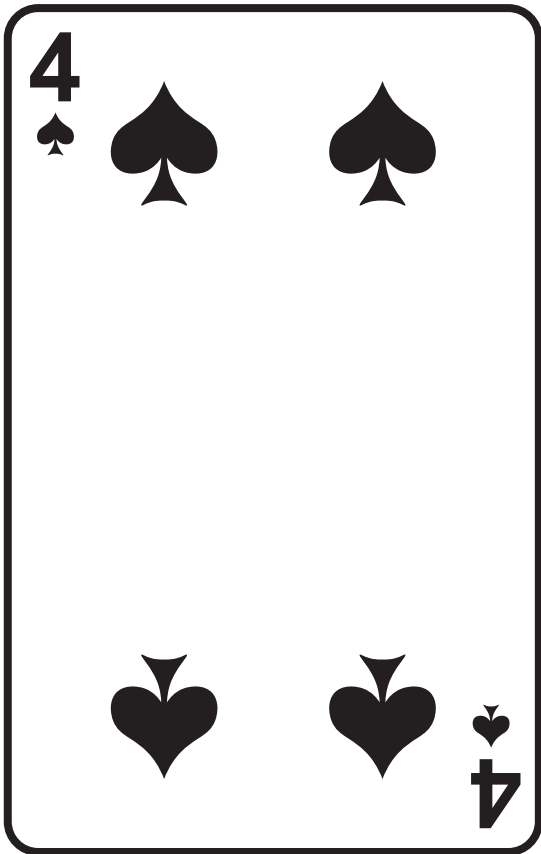


Question 11 (b)

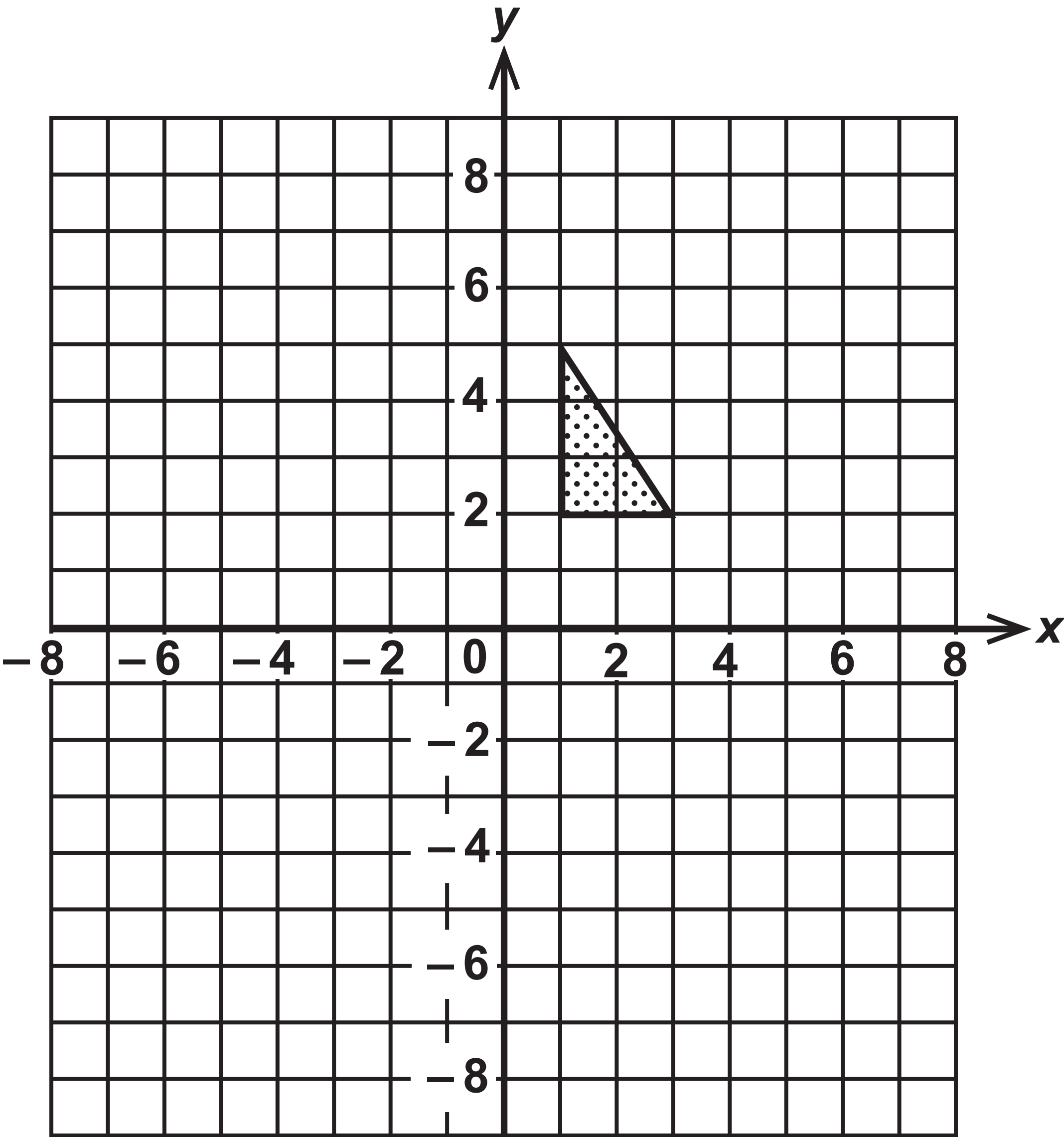
Diagram NOT drawn to scale



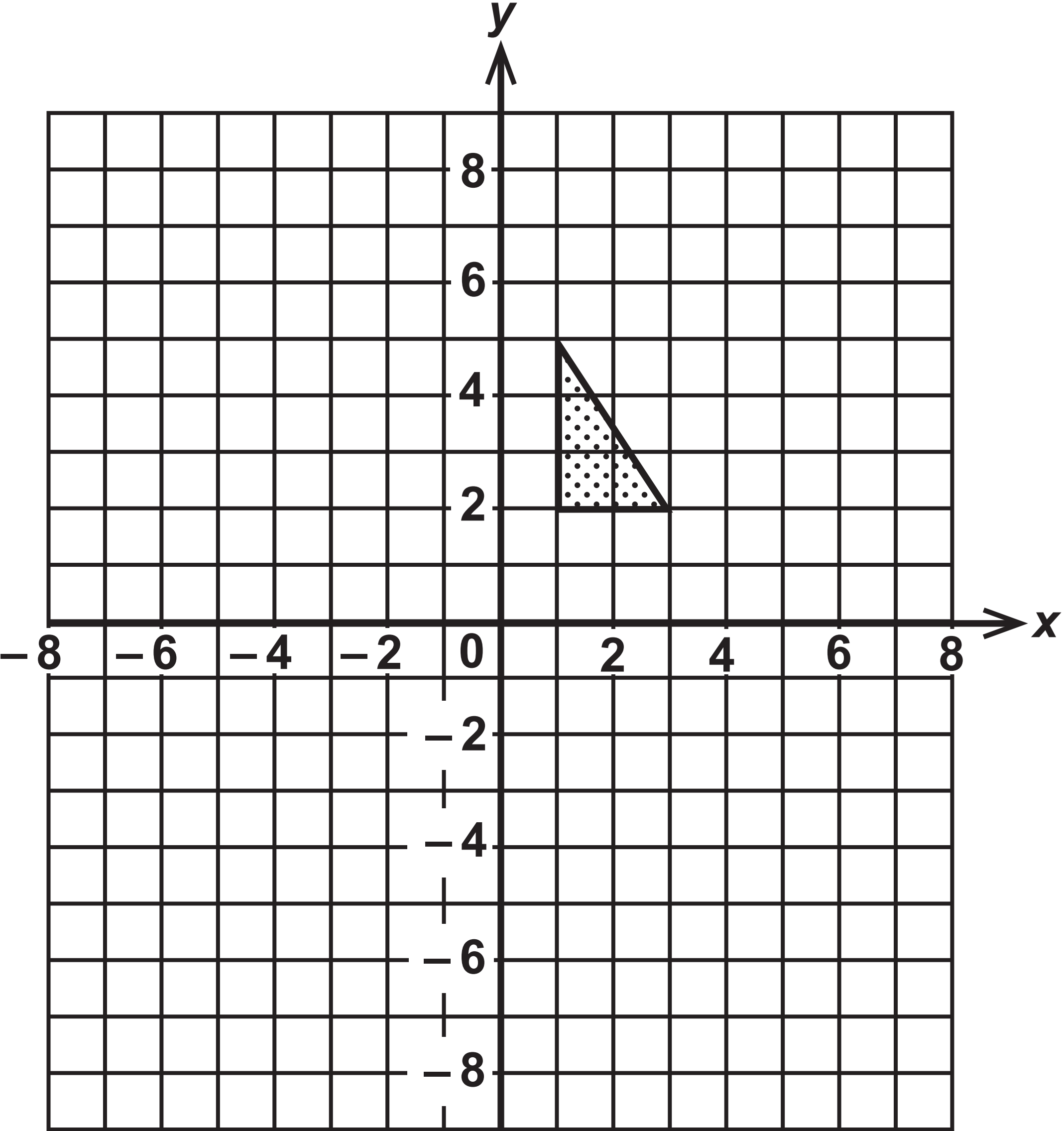
Question 14



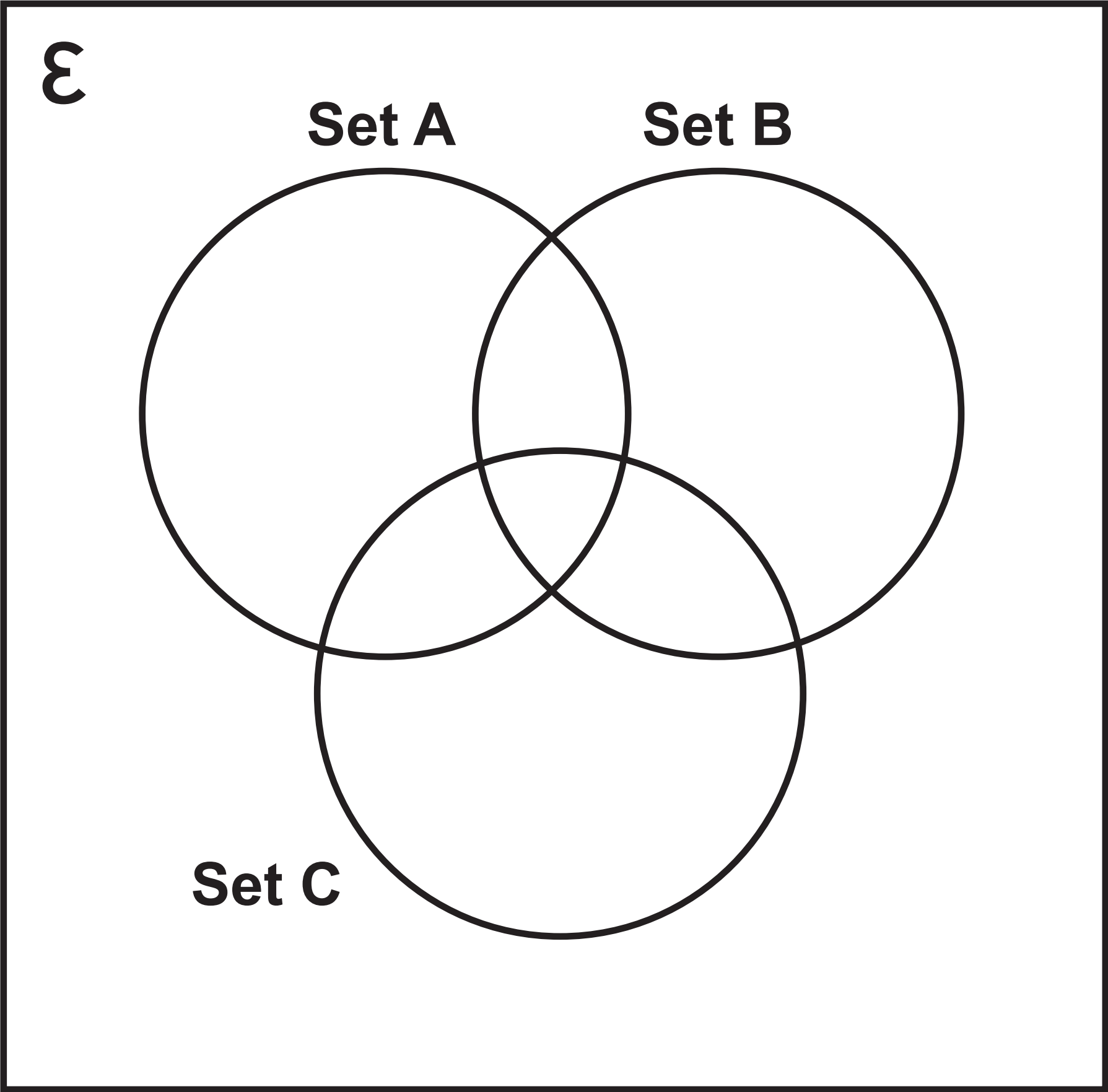
Question 17 (a)



Question 17 (b)



Question 18



**GCSE
MATHEMATICS
and
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MATHEMATICS – NUMERACY**

**FORMULA LIST
FOUNDATION TIER
GCSE**

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

