

2021 Year 7 Topic Tests Information Sheet

2021 Year 7 Topic Tests is a set of short answer questions and their solutions.

The topics covered are:

- Numbers, Percentages and Fractions (4 questions)
- Ratios, Rates and Time (3 questions)
- Patterns and Algebra (4 questions)
- Geometry (3 questions)
- Linear Relationships (4 questions)
- Probability (3 questions)
- Statistics (3 questions)

2021 Year 7 Topic Tests also includes a **Mid-year test** that consists of:

- 15 multiple choice questions
- 5 short answer questions
- 2 extended response questions

Mid-year test covers all topic except Probability and Statistics.

Distribution

We will email electronic copies

File format

MS Word DOCX format and PDF format

Sample

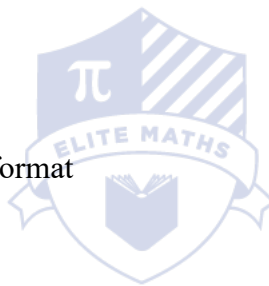
We have attached sample questions

Release date

1st of March 2021

Price

\$105



**2021 Year 7 Mathematics
Numbers, Percentages and Fractions Test**

**Time allowed: 1 hour
Total marks: 30 marks**

Question 1 (7 marks)

a. $\frac{3}{4} = \frac{\boxed{}}{12}$

1 mark

What number should be in the box above?

b. Evaluate $-3 + (-2)$.

1 mark

c. Convert $2\frac{3}{8}$ to an improper fraction.

1 mark

d. Evaluate $\frac{1}{3} - \frac{1}{4} + \frac{1}{2}$.

2 marks

e. Evaluate $-8 \div \frac{1}{6}$.

2 marks

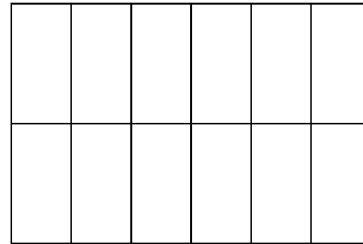
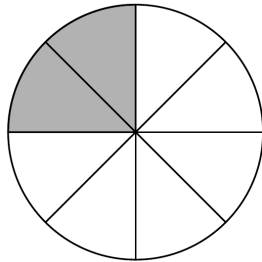
Question 2 (6 marks)

a. What is the greatest common factor of 49 and 77?

1 mark

b. Shade in the diagram on the right so that the proportion of shaded area in each diagram is the same.

1 mark



c. Write 5^3 in expanded form.

1 mark

d. Express 75 as the product of its prime factors.

2 marks

e. Is 1071 divisible by 3?

1 mark

Circle the correct answer.

Yes

No

2021 Year 7 Mathematics
Ratios, Rates and Time Test

Time allowed: 1 hour
Total marks: 30 marks

Question 1 (11 marks)

a. Convert 300 kg to tonnes.

1 mark

b. How many cm are there in 20 m?

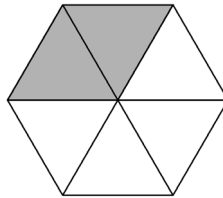
2 marks

c. Simplify the ratio 6:8.

1 mark

d.

2 marks



For the diagram above, find the ratio between the shaded parts and the unshaded parts.
Write the ratio in its simplest form.

e. In a fitness class, the ratio of the number of participants to the number of coaches is 8:1.
If there are 4 coaches in the class, how many participants would there be?

2 marks

Question 3 (10 marks)

a. Convert 2:55 am to 24-hour time.

2 marks

b. Convert 2102 to 12-hour time.

2 marks

c. Stefan is at Oakleigh station at 2:45 pm to catch the 624 Kew bus.
The following table is part of the bus timetable.

624 Kew Bus Timetable			
Stops	PM		
Oakleigh Station	2:04	3:35	4:15
Eaton St	2:08	3:39	4:19
Atherton Rd	2:13	3:44	4:24
Stamford Rd	2:21	3:52	4:32
Devon Gr	2:29	4:00	4:40
Ferntree Gully Rd	2:32	4:03	4:43

i. How many minutes will Stefan have to wait for the next 624 bus?

2 marks

ii. Stefan wants to get to Ferntree Gully Rd.

2 marks

How many hours will his bus trip take from Oakleigh station?
Express your answer as a fraction in simplest form.

**2021 Year 7 Mathematics
Patterns and Algebra Test**

**Time allowed: 1 hour
Total marks: 30 marks**

Question 1 (9 marks)

a. Simplify $y - y + 3y$.

1 mark

b. Simplify $2 \times x \times z \times x \times 3 \times x$.

2 marks

c. Write $-3c^2$ in expanded form.

2 marks

d. If $a = -5$, $b = 4$ and $c = 8$, evaluate $a + b - c$.

2 marks

e. Simplify $\frac{2yz}{xz}$.

2 marks

Question 3 (8 marks)

a. The cost of hosting a dinner party is given by $C = 55n + 150$, where n is the number of guests and C is the cost in dollars.

i. In the above equation, briefly explain what the constant term 150 could mean. 1 mark

ii. Use the formula $C = 55n + 150$ to find the cost of hosting a dinner party with 12 guests. 2 marks

b. Solve each of the following equations.

i. $x - 13 = -4$ 2 marks

ii. $\frac{w+1}{4} = 9$ 2 marks

c. Complete the following sentence with the appropriate word. 1 mark

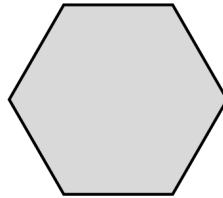
$4 \times 17 = 17 \times 4$ is an example of the _____ law.

**2021 Year 7 Mathematics
Geometry Test**

**Time allowed: 1 hour
Total marks: 30 marks**

Question 1 (8 marks)

a.

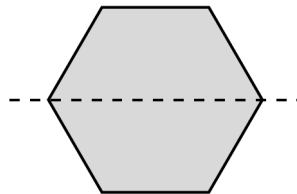


i. What is the name of the shape shown above?

1 mark

A dotted line is drawn as shown below.

If the shape is folded along the line, one half of the shape will fit exactly on top of the other half.



ii. Write down the name of the dotted line.

1 mark

iii. Write down the name of the shape that is formed after the shape is folded along the dotted line.

1 mark

b. Complete each of the following sentences by writing down the appropriate word or number.

i. All _____ of a scalene triangle are unequal.

1 mark

ii. Acute angles are less than _____°.

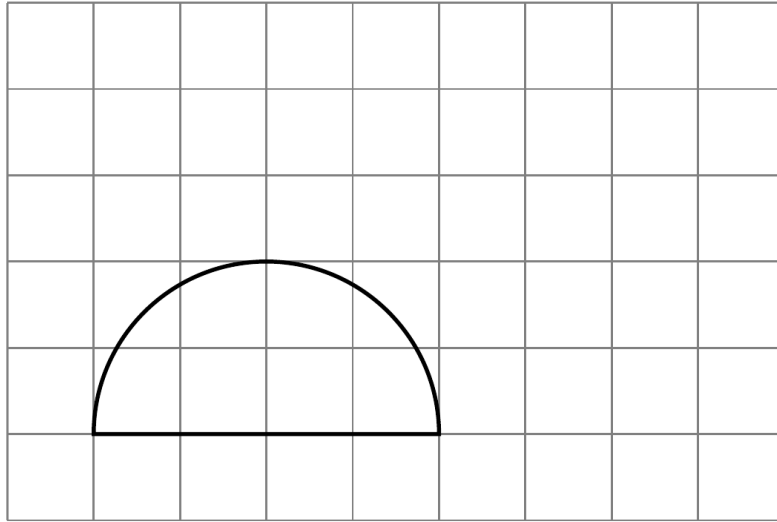
1 mark

iii. The diagonals of a rhombus bisect each other at _____ angles.

1 mark

Question 2 (15 marks)

a. Consider the shape shown on the grid below.



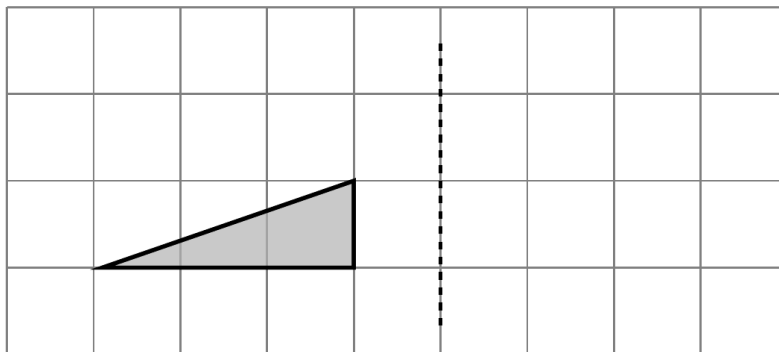
i. Complete each of the following sentences by writing down the missing word or number. 2 marks

The name of the shape above is a _____.

The area of this shape is greater than 4 units², but less than _____ units².

ii. Translate the shape above by 4 units to the right and 3 units up. 2 marks

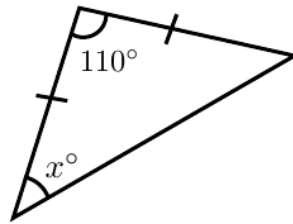
b. Consider the shape shown on the grid below.



i. Is the shape shown above a scalene triangle?
Justify your answer. 2 marks

ii. Reflect the shape above about the dotted line. 2 marks

c. Consider the following triangle.



i. Circle the correct name of this triangle.

1 mark

Equilateral triangle

Right-angled triangle

Isosceles triangle

ii. Complete the following working to find the value of x by writing the appropriate number in each box.

3 marks

The sum of the internal angles of a triangle is °.

$x + x + 110 = 180$ which simplifies to $2x =$.

Therefore, the value of x is .

d. Here are some words that can be used to describe different angles.

acute	obtuse	reflex	right
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Complete each sentence by choosing the appropriate word from above.

i. Angles greater than 90° but less than 180° are called _____.

1 mark

ii. 35° is an example of an _____ angle.

1 mark

iii. The internal angles of a square are _____ angles.

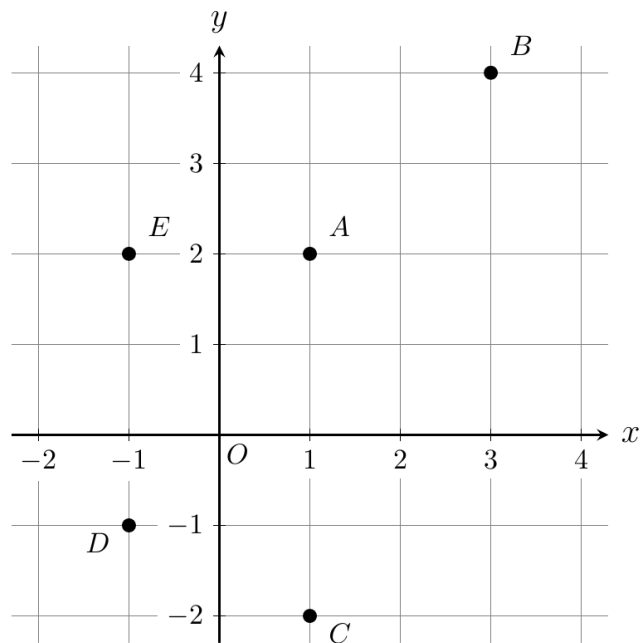
1 mark

**2021 Year 7 Mathematics
Linear Relationships Test**

**Time allowed: 1 hour
Total marks: 25 marks**

Question 1 (5 marks)

Five points (*A* to *E*) are drawn on the number plane shown below.



a. Which point has the coordinates (3,4) ? 1 mark

b. How many points are in the 2nd quadrant? 1 mark

c. Which point is obtained when *A* is reflected about the *y*-axis? 1 mark

d. Find the shortest distance between point *A* and point *C*. 1 mark

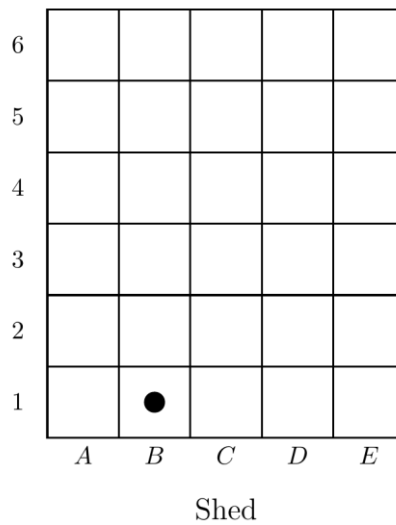
e. When point *A* is rotated 90° clockwise about the origin, is point *C* obtained? 1 mark
Circle the correct answer.

True

False

Question 2 (5 marks)

The following grid shows a cucumber field divided into square patches.



Isaac is currently at *B1* (marked ● above).

- a.** How many square patches are in the cucumber field in total? 1 mark

- b.** How many units does Isaac have to move to the right to get to *D1*? 1 mark

- c.** How many units does Isaac have to move away from the shed to get to *B5*? 1 mark

- d.** Complete the following paragraph below by writing the appropriate word or number in each gap. 2 marks

Isaac usually moves from *B1* to *E6* by either of the following routes.

The first route is to move 3 units to the right, and then move _____ units away from the shed.

The second route is to move 4 units away from the shed, move _____ units to the right, and then finally move 1 unit away from the shed.

**2021 Year 7 Mathematics
Probability Test**

**Time allowed: 1 hour
Total marks: 20 marks**

Question 1 (6 marks)

Determine whether the following statements are true or false.

a. A probability of 1 means certainty. 1 mark

True False

b. The probability of obtaining a tail when throwing a fair coin is 2. 1 mark

True False

c. When a fair die is thrown and the number on the top face is recorded, there are three possible outcomes in which an even number is rolled. 1 mark

True False

d. If the probability of raining tomorrow is 0.3, this means that it is extremely unlikely that it will rain tomorrow. 1 mark

True False

e. If a particular train service had an interruption last week, it is certain that the train service will be interrupted this week. 1 mark

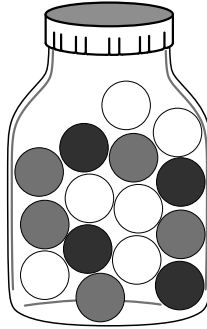
True False

f. When a fair die is thrown, the probability that a composite number is obtained on the top face is $\frac{1}{3}$. 1 mark

True False

Question 2 (7 marks)

A jar contains 4 black lollies, 5 grey lollies and 6 white lollies.



Lauren takes one lolly out of the jar without looking.

- a.** How many lollies are either black or grey? 1 mark

- b.** Are the three colours of lollies equally likely to be chosen? 1 mark
Circle the correct answer.

Yes

No

- c.** Briefly explain your answer to part **b.** 1 mark

- d.** Find the probability of taking out a grey lolly. 2 marks
Express your answer as a fraction in simplest form.

- e.** Circle the word that best describes the chance of taking out a white lolly. 1 mark

Impossible

Unlikely

Possible

Certain

- f.** Write down the complementary event to the event “taking out a black lolly”. 1 mark

**2021 Year 7 Mathematics
Statistics Test**

**Time allowed: 1 hour
Total marks: 20 marks**

Question 1 (7 marks)

The number of cameras sold at an electronics shop is displayed in the following picture diagram.

Key: Each  represents 5 cameras

Number of cameras sold in the first quarter of 2021



- a.** What type of data is the number of cameras sold? 1 mark
Circle the correct answer.

Categorical

Numerical

- b.** In which month was the most number of cameras sold? 1 mark

- c.** What is the total number of cameras sold in the first quarter of 2021? 2 marks

- d.** Complete the following paragraph about the picture diagram by writing the appropriate word or number in each space provided. 2 marks

The sale of cameras had a _____ trend in the first quarter of 2021, reaching the lowest number of only _____ cameras sold in March.

- e.** The owner of the electronics shop claims that the number of cameras sold in March could be incorrect. 1 mark

State one possible reason why he claims this despite what the picture diagram shows.

Question 2 (7 marks)

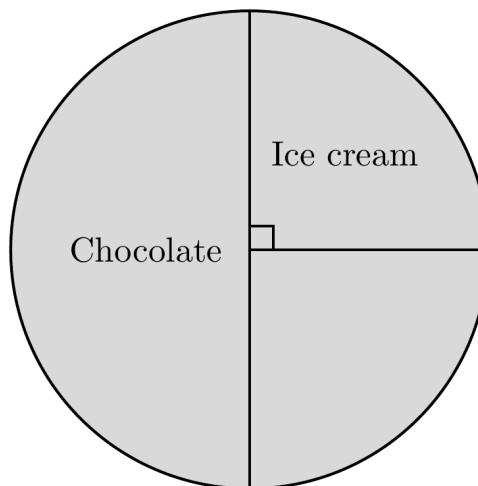
The following table shows the favourite dessert of 256 children.

Dessert	Number of votes
Chocolate	128
Ice cream	64
Fruit	32
Pastries	32
Total	256

- a. What is the least favourite dessert among the children? 1 mark

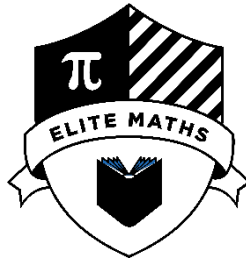
- b. Calculate the percentage of children who voted for pastries as their favourite dessert. 2 marks

- c. The diagram below is an incomplete pie chart displaying the data in the table above. 3 marks



Complete the pie chart above and label the sectors with the appropriate labels.

- d. State one advantage of using pie charts. 1 mark



2021 YEAR 7 MATHEMATICS

MIDYEAR TEST

Reading time: 15 minutes

Writing time: 2 hours

QUESTION BOOK

Structure of book

Section	Number of questions	Number of questions to be answered	Number of marks
A	15	15	15
B	5	5	25
C	2	2	20
			Total 60

SECTION A**Instructions for Section A**

Answer **all** questions.

Choose the response that is **correct** for the question.

A correct answer scores 1, an incorrect answer scores 0.

Marks will **not** be deducted for incorrect answers.

No marks will be given if more than one answer is completed for any question.

Question 1

$$-2 \boxed{} 3$$

The symbol that could be placed in the box above is

- A. >
- B. =
- C. <
- D. \geq

Question 2

$-25 \div (-5)$ is equal to

- A. -5
- B. 5
- C. 10
- D. 125

Question 3

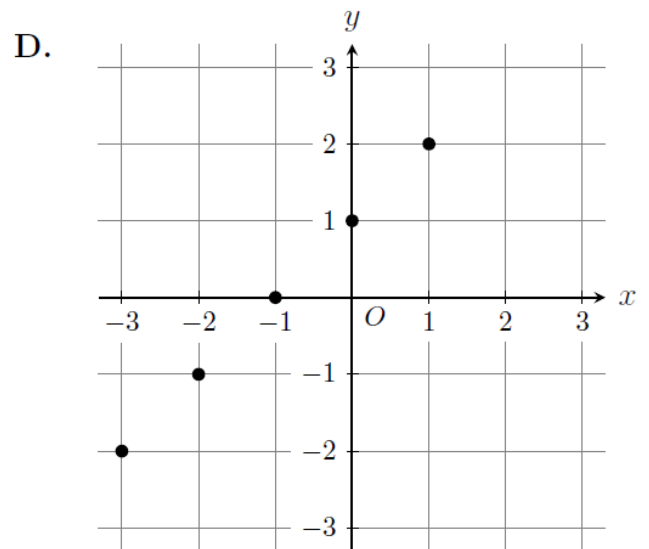
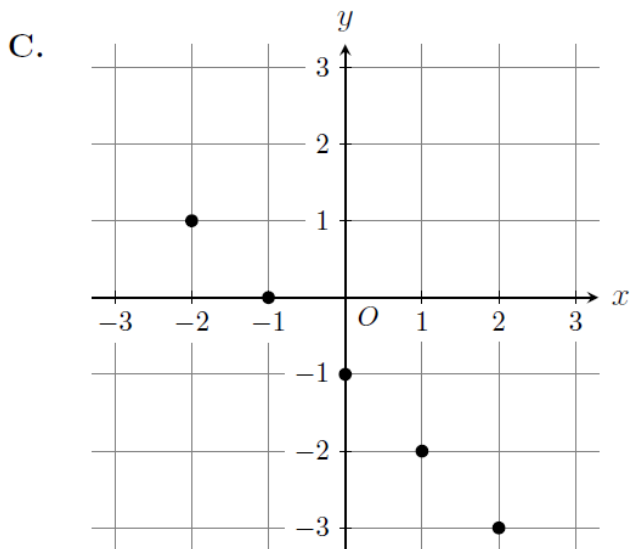
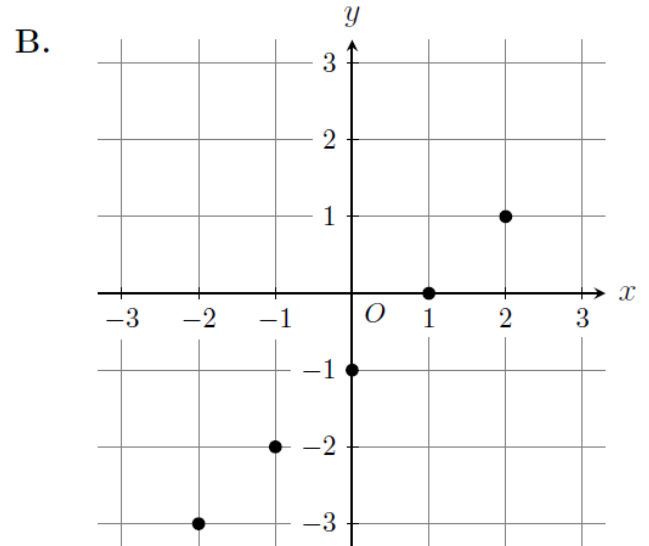
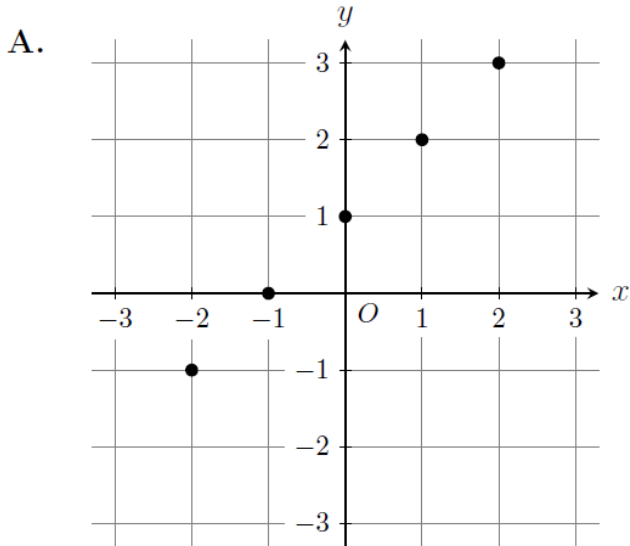
$3 + \frac{1}{10} + \frac{4}{100}$ as a decimal is

- A. 0.143
- B. 0.314
- C. 3.14
- D. 3.41

Question 10

x	-2	-1	0	1	2
y	-3	-2	-1	0	1

Which one of the following number planes correctly plots the table of values above?



SECTION B**Instructions for Section B**

Answer **all** questions.

In all questions where a numerical answer is required, an **exact** value must be given unless otherwise specified.

In questions where more than one mark is available, appropriate working **must** be shown.

Unless otherwise indicated, the diagrams in this book are **not** drawn to scale.

Question 1 (5 marks)

a. Evaluate $3 - 8$.

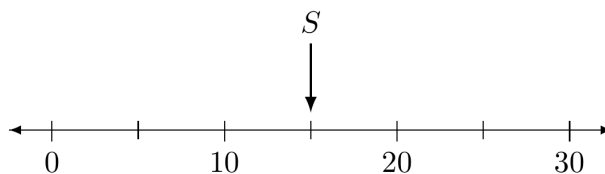
1 mark

b. Write the integers -2 , 4 , -7 and 1 in descending order.

2 marks

c.

1 mark



On the number line above, what is the positive integer indicated by S ?

d. Complete the following sentence by writing down the missing word.

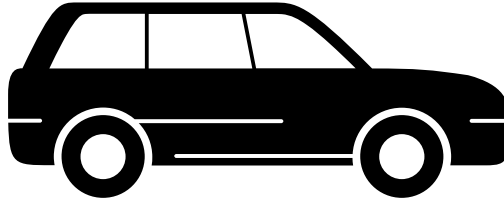
1 mark

27 is not a prime number because it has _____ than two factors.

Question 5 (5 marks)

a. Simon bought a car last year.

2 marks



His car has reduced in value by 34.8% in one year to \$32 600.
Calculate the price that Simon paid for his car last year.

b. Mary is baking scones.

2 marks

The recipe states that the scones should be left in the oven to bake for 2 hours and 15 minutes.
Mary put the scones in the oven at 9:52 am.
Find the time she should take the scones out of the oven.

c. Consider the following statements.

1 mark

- (i) Tripling a positive number always makes it larger
- (ii) Squaring a positive number always makes it larger
- (iii) Adding two numbers always results in a number greater than the two numbers

How many statements are true?
Circle the correct answer.

One

Two

Three

SECTION C**Instructions for Section C**

Answer **all** questions.

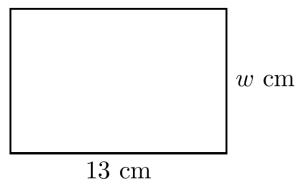
In all questions where a numerical answer is required, an **exact** value must be given unless otherwise specified.

In questions where more than one mark is available, appropriate working **must** be shown.

Unless otherwise indicated, the diagrams in this book are **not** drawn to scale.

Question 1 (10 marks)

a. Consider the rectangle shown below.



The length of the rectangle is 13 cm and the width is w cm.

i. Find the expression for the perimeter of the rectangle in terms of w .

2 marks

Write your answer in the form $a + bw$, where a and b are integers.

ii. If the perimeter of the rectangle is 40 cm, find the value of w .

3 marks

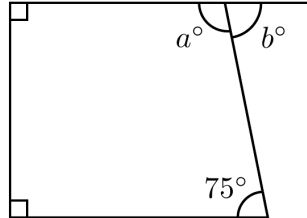
Simplify your answer.

b. Complete the following sentence by writing down the missing value.

1 mark

The sum of the internal angles of a quadrilateral is _____°.

c. Consider the diagram below.



i. Find the value of a .

2 marks

ii. Find the value of b .

2 marks

- f. Jason's budget for his Bali trip is \$2750. 3 marks
Jason spends one third of the budget in his first week, and one quarter of what is remaining in his second week.
What is the remaining amount of money in the budget after the second week?

END OF QUESTION AND ANSWER BOOK

SOLUTIONS**SECTION A**

Question	Answer
1	C
2	B
3	C
4	D
5	D
6	A
7	B
8	B
9	C
10	B
11	C
12	D
13	D
14	A
15	C

Question 1

The symbol “<” is appropriate as $-2 < 3$ is a valid inequality.

Answer is **C**.

Question 2

$$-25 \div (-5) = 5$$

Answer is **B**.

Question 3

$$3 + \frac{1}{10} + \frac{4}{100} = 3 + 0.1 + 0.04$$

$$= 3.14$$

Answer is **C**.

Question 4

$$\frac{6}{15} \times 100 = 40\%$$

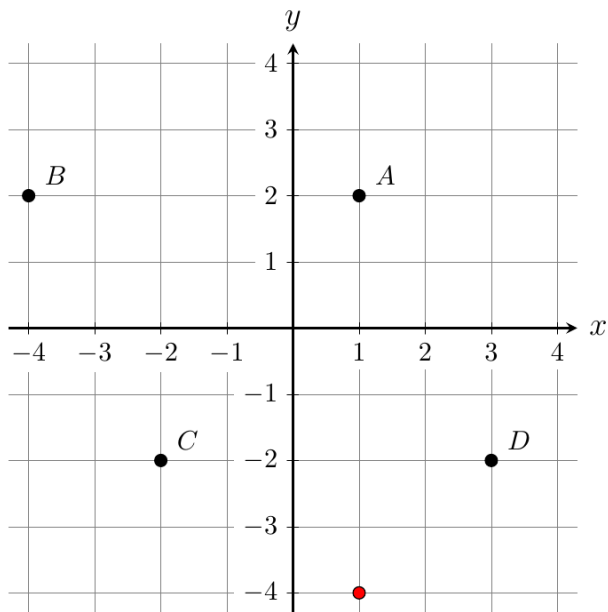
Answer is **D**.

Question 4 (5 marks)**a.** 1 mark $(1,2)$ (A1)**b.** 1 mark

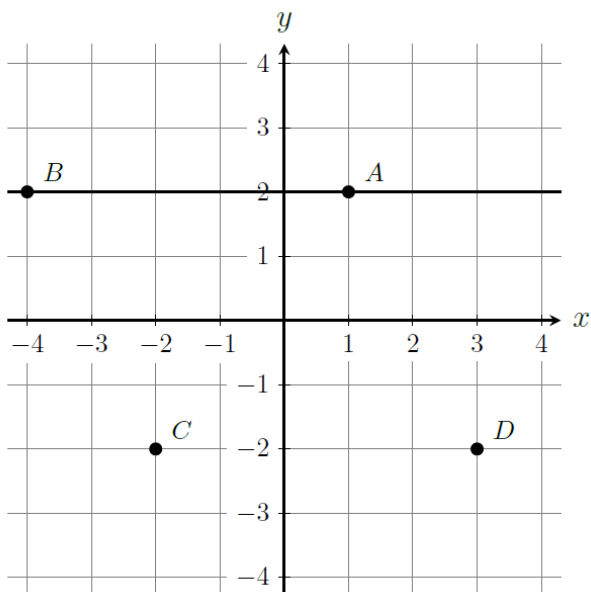
4th quadrant (A1)

b. 1 mark

parallelogram (A1)

d. 1 mark

- Correct point is plotted. (A1)

e. 1 mark

- Correct horizontal line is drawn. (A1)

Question 2 (10 marks)

a. 2146 (A1) 1 mark

b. 4:11 am, 16 March 2021 2 marks

- Correct time (accept 0411). (A1)
- Correct date. (A1)

c. 1:11 am, 16 March 2021 1 mark

- Correct time and date (accept 0111 for the time). (A1)

d. 2 marks

$$\$990 \times \frac{2}{3} \text{ (A1)}$$

$$= \$660 \text{ (A1)}$$

e. 2:1 (A1) 1 mark

f. 3 marks

The remaining amount after the second week, as a fraction, is

$$\frac{2}{3} \times \frac{3}{4} \text{ (A1)}$$

$$= \frac{1}{2} \text{ (A1)}$$

Therefore, the remaining amount is

$$\$2750 \times \frac{1}{2} = \$1375 \text{ (A1)}$$