Please check the examination details below before entering your candidate information

Candidate surname	Other names

Centre Number | Candidate Number

Pearson Edexcel Level 1/Level 2 GCSE (9–1)

Wednesday 14 June 2023

Morning (Time: 1 hour 30 minutes)

Paper reference **1MA1/3F**

Mathematics

PAPER 3 (Calculator)
Foundation Tier

Past Paper Website Home

You must have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser, calculator, Formulae Sheet (enclosed). Tracing paper may be used.

Total Marks

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.
- You must **show all your working.**
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.
- **Calculators may be used.**
- If your calculator does not have a π button, take the value of π to be 3.142 unless the question instructs otherwise.

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.
- Try to answer every question.
- Check your answers if you have time at the end.

Turn over ▶

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P 7 5 1 5 1 A 0 1 2 4

Pearson

Answer ALL questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

1 Write the number three thousand one hundred and seven in figures.

QD1A

.....

(Total for Question 1 is 1 mark)

2 Write $\frac{3}{10}$ as a percentage.

QD2A

..... %

(Total for Question 2 is 1 mark)

3 Simplify $m + m + m + m$

QD3A

.....

(Total for Question 3 is 1 mark)

4 Change 4000 grams into kilograms.

QD4A

..... kilograms

(Total for Question 4 is 1 mark)

5 7 –5 3 9 –2

Write these numbers in order of size.
Start with the smallest number.

QD5A

.....

(Total for Question 5 is 1 mark)

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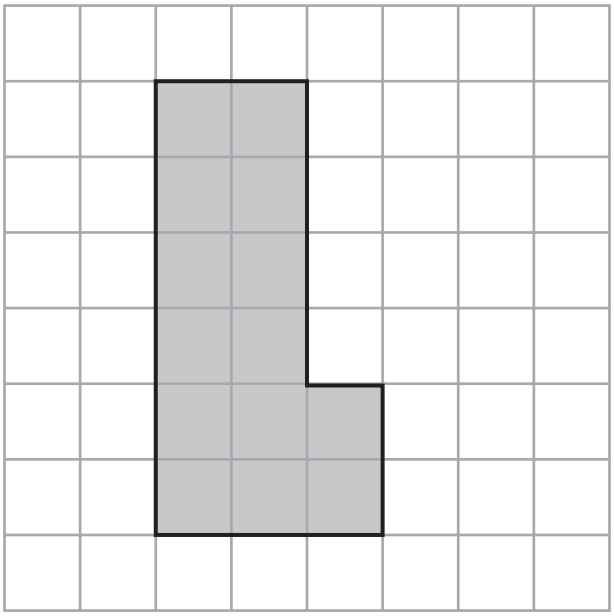
6 The diagram shows a shape on a centimetre grid.

QD6A



(a) Find the area of the shape.

..... cm^2

(1)

(b) Find the perimeter of the shape.

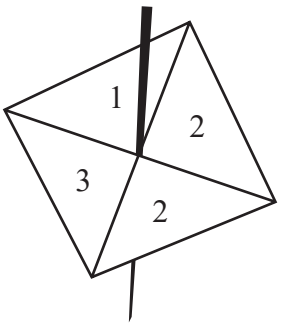
..... cm

(1)

(Total for Question 6 is 2 marks)

7 Here is a 4-sided spinner.

QD7A



Samina spins the spinner once.

(a) Choose the word that best describes the probability that the spinner lands on 2

impossible	unlikely	evens	likely	certain

.....

(1)

(b) Choose the word that best describes the probability that the spinner lands on a number less than 4

impossible	unlikely	evens	likely	certain

.....

(1)

Ralph rolls a biased dice once.
The probability that he gets the number 5 is 0.4

(c) Work out the probability that Ralph does **not** get the number 5

.....

(1)

(Total for Question 7 is 3 marks)

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8 A quadrilateral has 4 right angles and 4 sides of equal length.

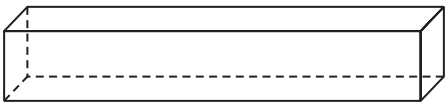
QD8A

(a) Write down the mathematical name of this quadrilateral.

.....

(1)

The diagram shows a solid shape.



(b) Write down the mathematical name of this shape.

.....

(1)

(Total for Question 8 is 2 marks)

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QD9A

9 The table shows the number of books read by four people in one month.

Person	Number of books
Ximena	7
Martha	9
Kezia	1
Tabby	5

(a) Work out the median number of books.

.....

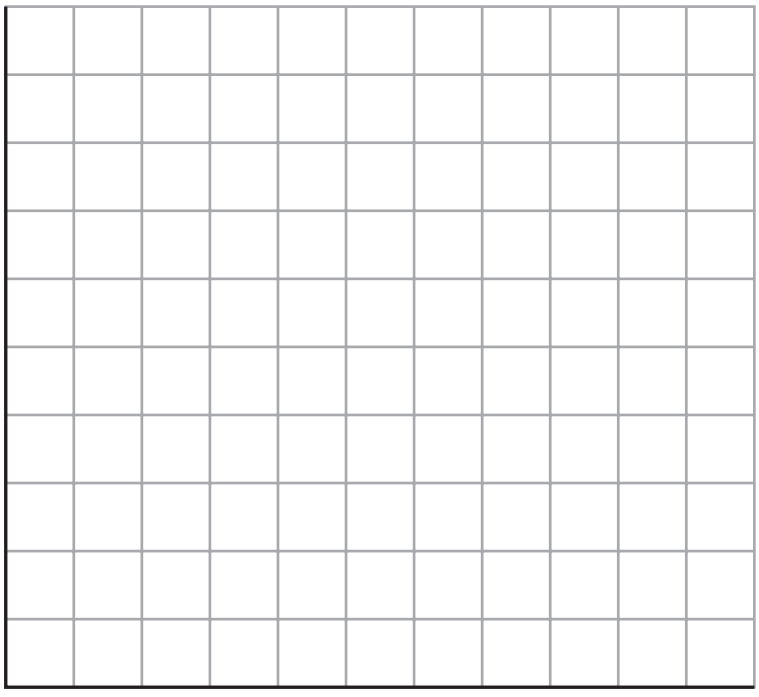
(2)

(b) Find the range.

.....

(1)

(c) On the grid, draw a bar chart to show the information in the table.



(3)

(Total for Question 9 is 6 marks)

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10 Wayne begins walking at 8 30 am.
He walks for 1 hour and 45 minutes.

Wayne then rests for 15 minutes.
He then walks for 85 minutes to a cafe.

Does Wayne get to the cafe before 12 noon?
You must show how you get your answer.

QD10A

(Total for Question 10 is 4 marks)

11 Gabriel thinks of a number.

He multiplies his number by 5 and then adds 7
His answer is 72

What number did Gabriel think of?

QD11A

.....

(Total for Question 11 is 3 marks)

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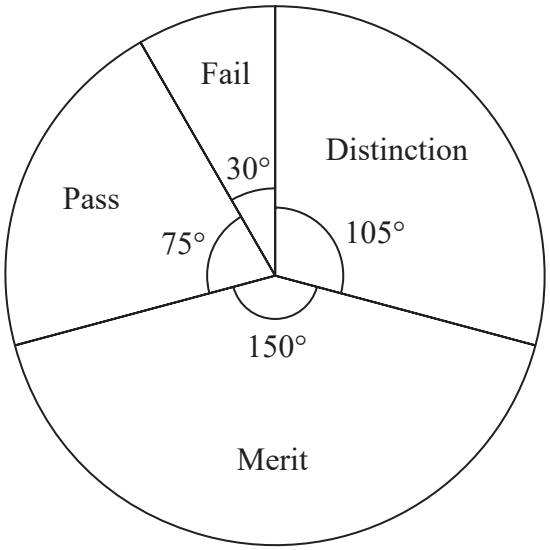
12 Some students took a guitar exam.

The pie chart shows information about the grades the students got.

QD12A



(a) Write down the modal grade.

.....

(1)

7 students got distinction.

(b) Work out the total number of students who took the guitar exam.

.....

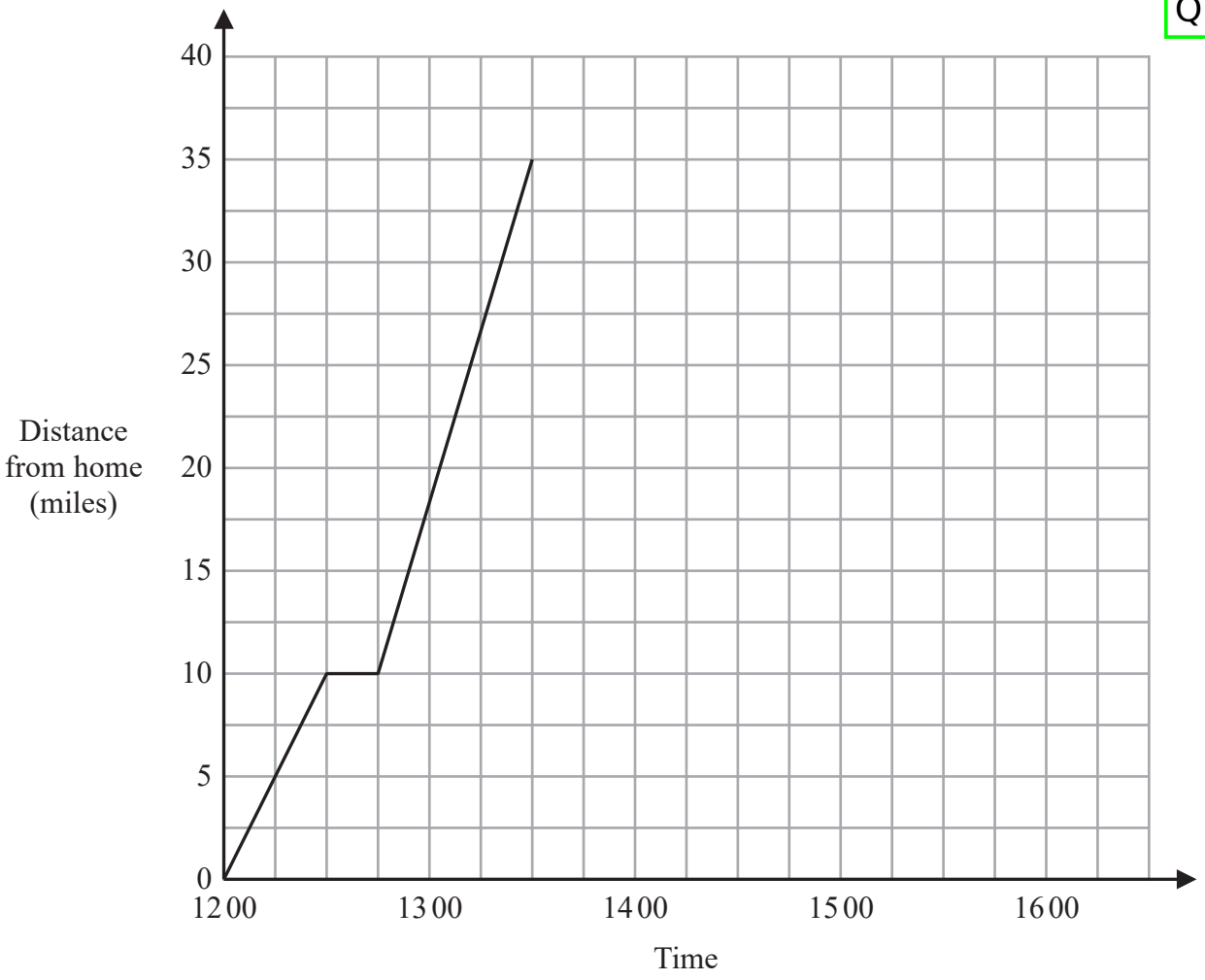
(3)

(Total for Question 12 is 4 marks)

13 Rowena drove from her home to a beach.

Here is a travel graph for her journey.

QD13A



Rowena stopped at a cafe on her way to the beach.

(a) (i) How many minutes did Rowena take to drive to the cafe?

..... minutes

(1)

(ii) Write down the distance from Rowena's home to the cafe.

..... miles

(1)

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Rowena stayed at the beach for $1\frac{1}{2}$ hours.

She then drove home without stopping.
Rowena arrived home at 16 00

(b) On the grid, complete the travel graph.

(2)

(c) Work out the average speed for the journey from the beach to Rowena's home.

..... miles per hour

(1)

(Total for Question 13 is 5 marks)

14 120 boxes cost £6
270 bags cost £10

A bag is cheaper than a box.

How much cheaper?
Give your answer in pence correct to 1 decimal place.

QD14A

.....p

(Total for Question 14 is 4 marks)

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15 There are only red beads and green beads in a bag.

number of red beads : number of green beads = 1 : 4

There are 35 red beads in the bag.

Work out the total number of beads in the bag.

QD15A

.....

(Total for Question 15 is 2 marks)

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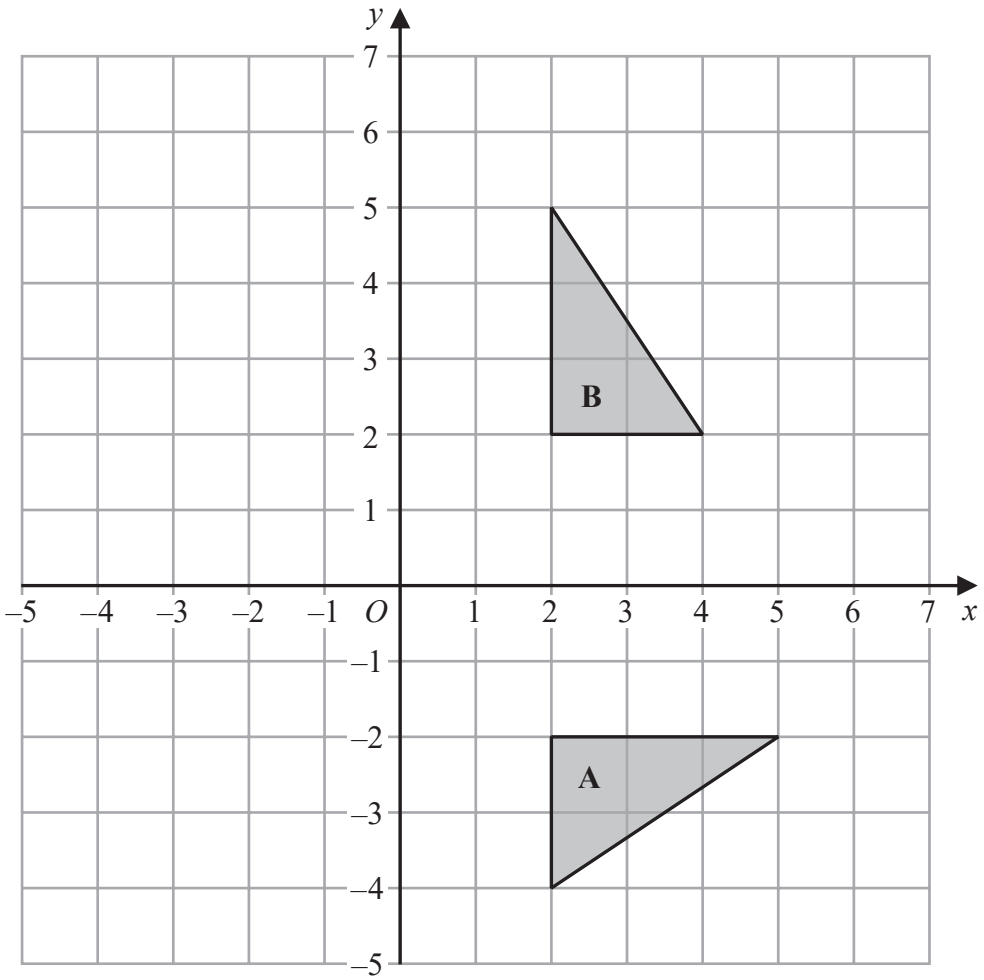
16



QD16A

Describe fully the single transformation that maps shape **A** onto shape **B**.

.....

.....

.....

(Total for Question 16 is 2 marks)

17 The diagram shows the position of town T.

Town R is 55 km from town T on a bearing of 065°

Mark the position of town R with a cross (×).
Use a scale of 1 cm to 10 km.

QD17A

(Total for Question 17 is 2 marks)

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18 Solve $4(2x - 3) = 20$

QD18A

$x =$ .....

(Total for Question 18 is 3 marks)

19 Jenny invests £3000 for 6 years at y% simple interest per year.

At the end of the 6 years, Jenny has received a total of £450 in interest.

Work out the value of y.

QD19A

$y =$ .....

(Total for Question 19 is 3 marks)

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20 (a) Simplify $(m^2)^3$

QD20A

.....

(1)

(b) Simplify $x^5 \times x^8$

.....

(1)

(c) Expand $4p(p^2 + 3p)$

.....

(2)

(Total for Question 20 is 4 marks)

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21 Jonny wants to know how much coffee he will need for 800 people at a meeting.

QD21A

Each person who drinks coffee will drink 2 cups of coffee.
10.6 g of coffee is needed for each cup of coffee.

Jonny assumes 68% of the people will drink coffee.

(a) Using this assumption, work out the amount of coffee Jonny needs.
Give your answer correct to the nearest gram.

..... g

(4)

Jonny's assumption is wrong.
72% of the people will drink coffee.

(b) How does this affect your answer to part (a)?

.....

.....

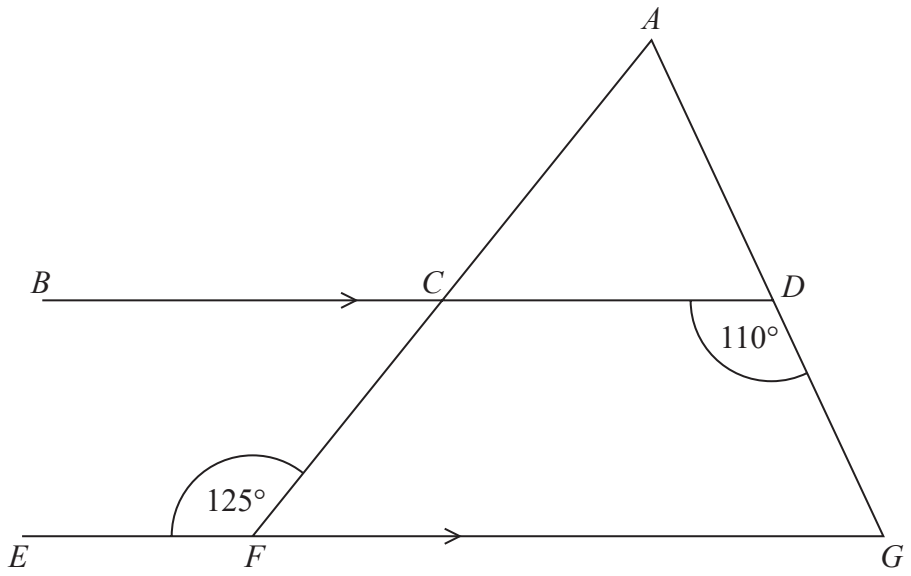
.....

(1)

(Total for Question 21 is 5 marks)

22 *ACF* and *ADG* are straight lines.
BCD and *EFG* are parallel lines.

QD22A



Show that triangle *ACD* is isosceles.
Give a reason for each stage of your working.

(Total for Question 22 is 5 marks)

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23 It takes 14 hours for 5 identical pumps to fill a water tank.

How many hours would it take 4 of these pumps to fill another water tank of the same size?

QD23A

..... hours

(Total for Question 23 is 2 marks)

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24 A and B are numbers such that

$$A = 2^2 \times 3^4 \times 7$$
$$B = 3^2 \times 7^2$$

QD24A

(a) Find the highest common factor (HCF) of A and B.

.....

(1)

(b) Find the lowest common multiple (LCM) of A and B.

.....

(2)

(Total for Question 24 is 3 marks)

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25 Lava flows from a volcano at a constant rate of $11.9\,m^3/s$

How many days does it take for $67\,205\,600\,m^3$ of lava to flow from the volcano?
Give your answer correct to the nearest day.

QD25A

..... days

(Total for Question 25 is 3 marks)

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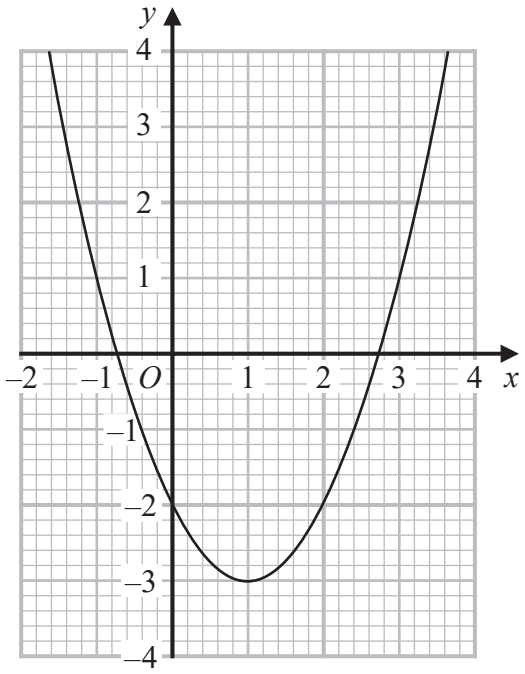
26 Here is the graph of $y = x^2 - 2x - 2$

QD26A



(a) Write down the coordinates of the turning point on the graph of $y = x^2 - 2x - 2$

(..... , ...)

(1)

(b) Write down an estimate for one of the roots of $x^2 - 2x - 2 = 0$

.....

(1)

(Total for Question 26 is 2 marks)

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27 A solid cuboid is made of metal.

The metal has a density of $9\,g/cm^3$
The volume of the cuboid is $72\,cm^3$

Work out the mass of the cuboid.

QD27A

..... g

(Total for Question 27 is 2 marks)

28 (a) Write $(9 \times 10^4) : (4.5 \times 10^6)$ in the form $1 : n$ where n is an integer.

QD28A

.....

(2)

(b) Write the following numbers in order of size.
Start with the smallest number.

5.625×10^4 5625 $56\,250 \times 10^{-3}$ $0.005\,625 \times 10^5$

.....

(2)

(Total for Question 28 is 4 marks)

TOTAL FOR PAPER IS 80 MARKS

Foundation Tier Formulae Sheet

Perimeter, area and volume

Where a and b are the lengths of the parallel sides and h is their perpendicular separation:

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

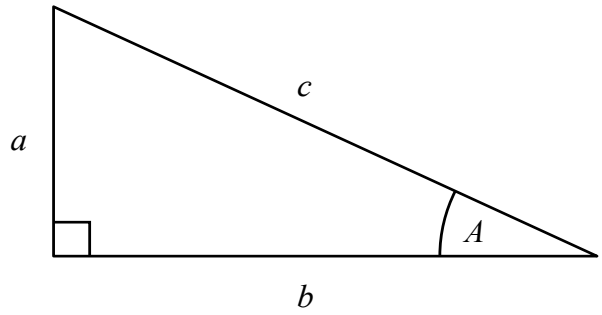
Volume of a prism = area of cross section × length

Where r is the radius and d is the diameter:

Circumference of a circle = $2\pi r = \pi d$

Area of a circle = πr^2

Pythagoras' Theorem and Trigonometry



In any right-angled triangle where a, b and c are the length of the sides and c is the hypotenuse:

$a^2 + b^2 = c^2$

In any right-angled triangle ABC where a, b and c are the length of the sides and c is the hypotenuse:

$\sin A = \frac{a}{c}$ $\cos A = \frac{b}{c}$ $\tan A = \frac{a}{b}$

Compound Interest

Where P is the principal amount, r is the interest rate over a given period and n is number of times that the interest is compounded:

Total accrued = $P\left(1 + \frac{r}{100}\right)^n$

Probability

Where P (A) is the probability of outcome A and P (B) is the probability of outcome B:

P (A or B) = P (A) + P (B) – P (A and B)

END OF EXAM AID