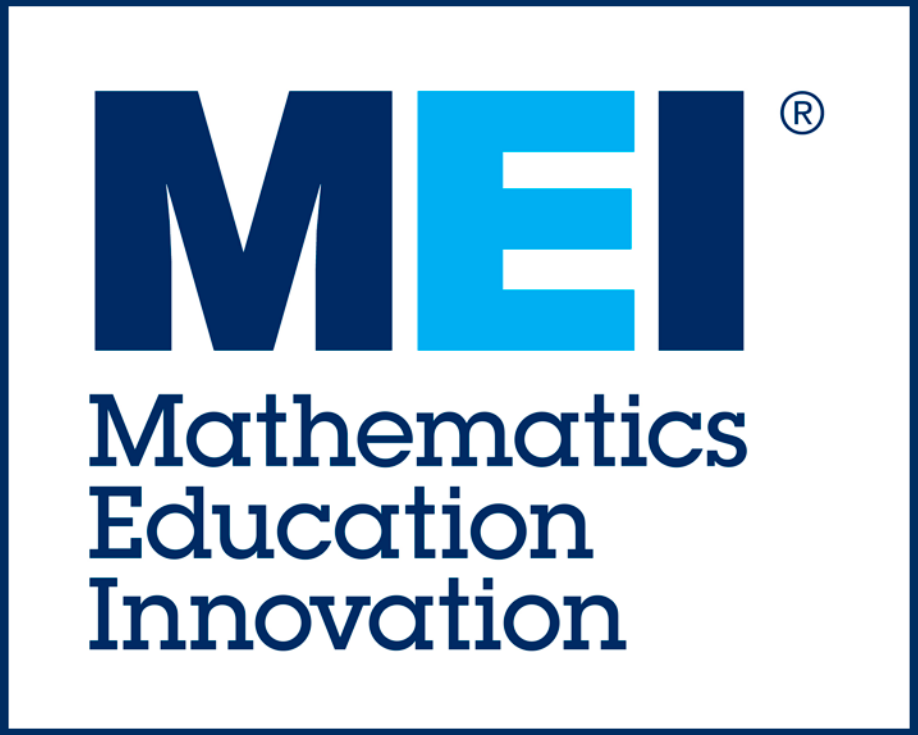

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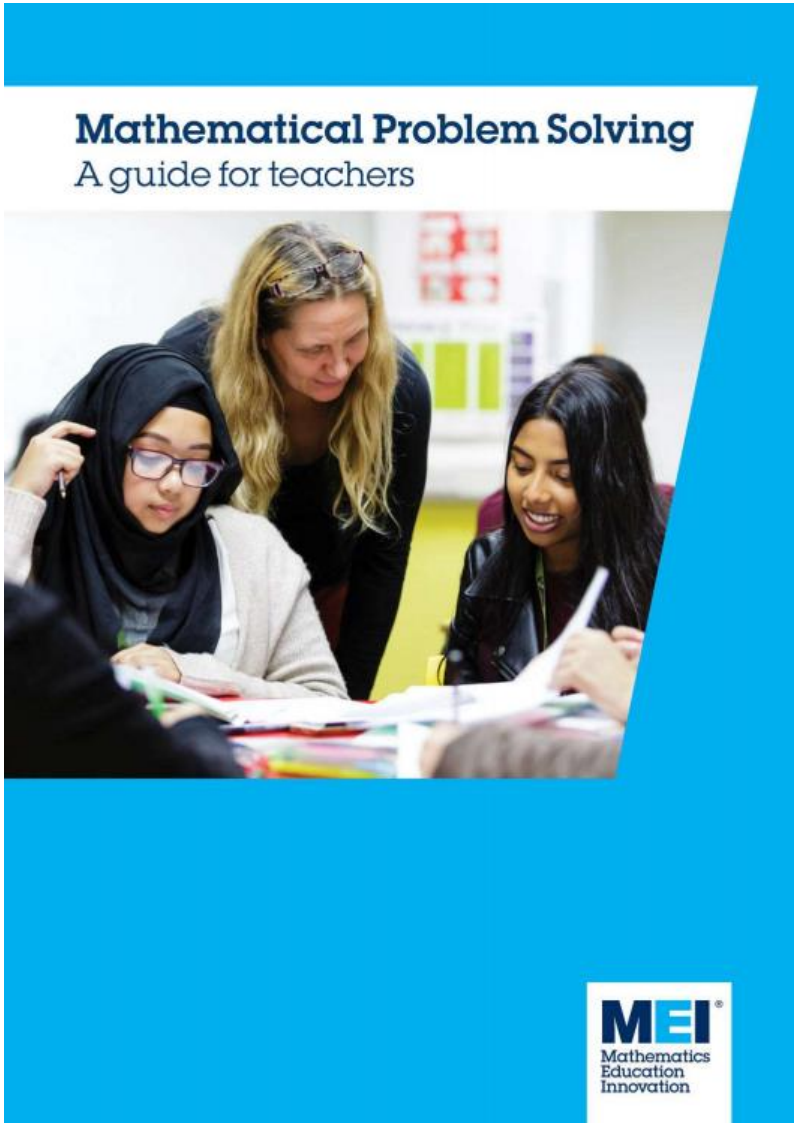
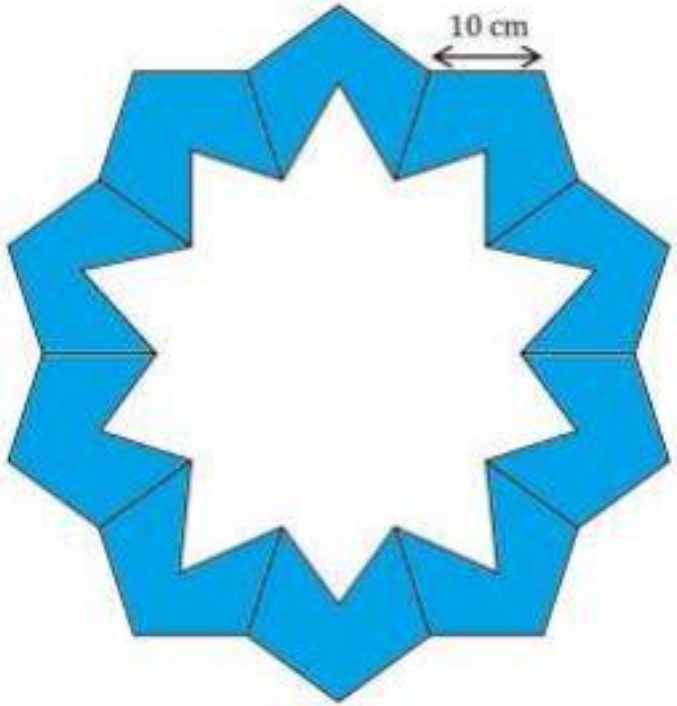


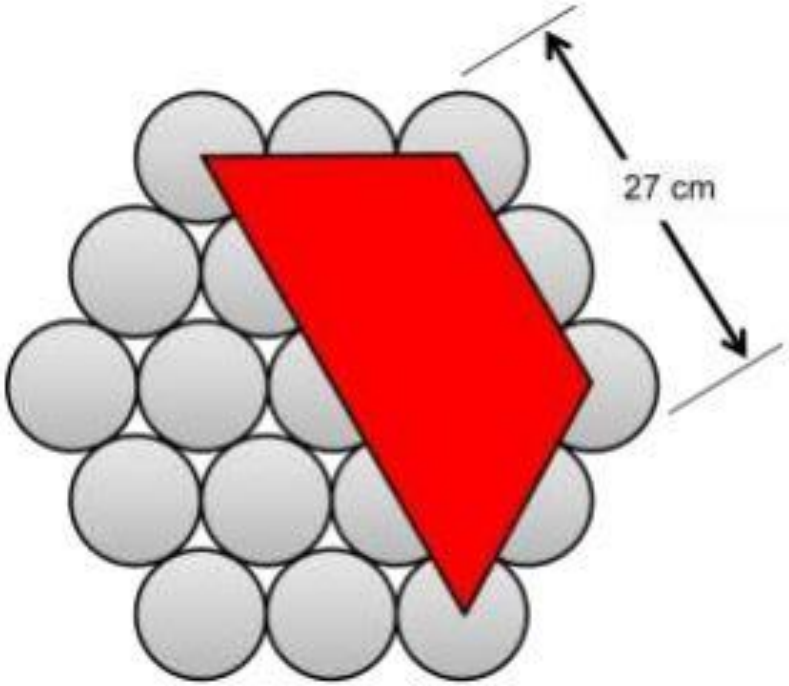
Example problems for GCSE Mathematics

GCSE: Example 2



Find the shaded area.

GCSE: Example 4



This diagram shows 19 identical circles arranged in a hexagon.

All of the vertices of the trapezium are in the centre of a circle.

Find the area of the trapezium.

GCSE: Example 6

Student instructions

A new strain of flu virus is sweeping across the country.

As the management team of a small healthcare practice, you are in charge of ordering anti-viral medicine.

How many boxes of anti-viral medicine will you need to order?

You do not wish to order too many or too few.

Use the clues on the cards to calculate a sensible estimate.

- Shuffle the cards and deal them all out
- Take it in turns to select one piece of information that you think is important and read it to the rest of the group
- You can write something down on the group's answer sheet but you must not show anyone any of your cards (even after you have read them out)
- You can remind the group of any information you have already read out at any stage
- You will need to go round the group more than once to get enough information to solve the problem
- As a group, try to find a sensible number of boxes of antiviral medicine to order
- Show your calculations and your answer on your group answer sheet.

What is the fewest number of cards needed to solve the problem?

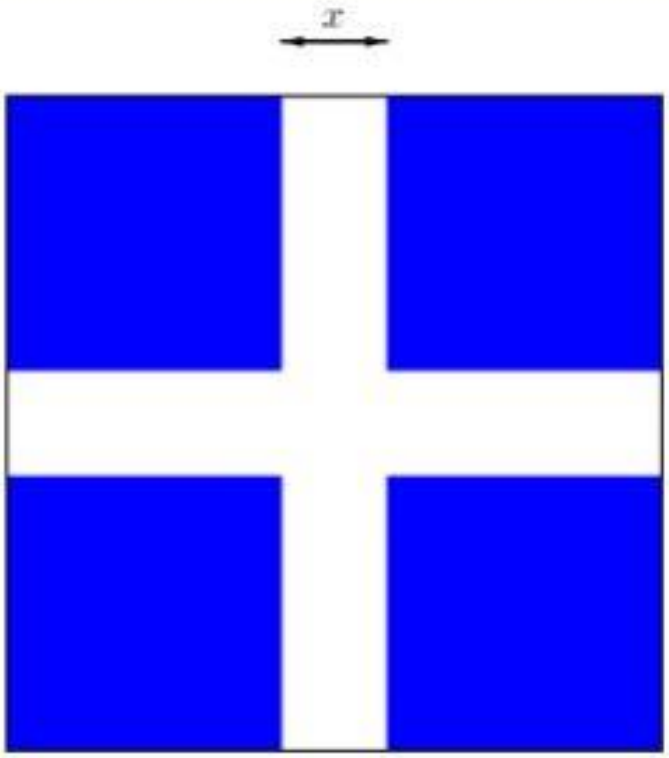
GCSE: Example 10

Five numbers are arranged in order from least to greatest:

$$x, x^3, x^4, x^2, x^0$$

Where does $-x^{-1}$ belong in the list above?

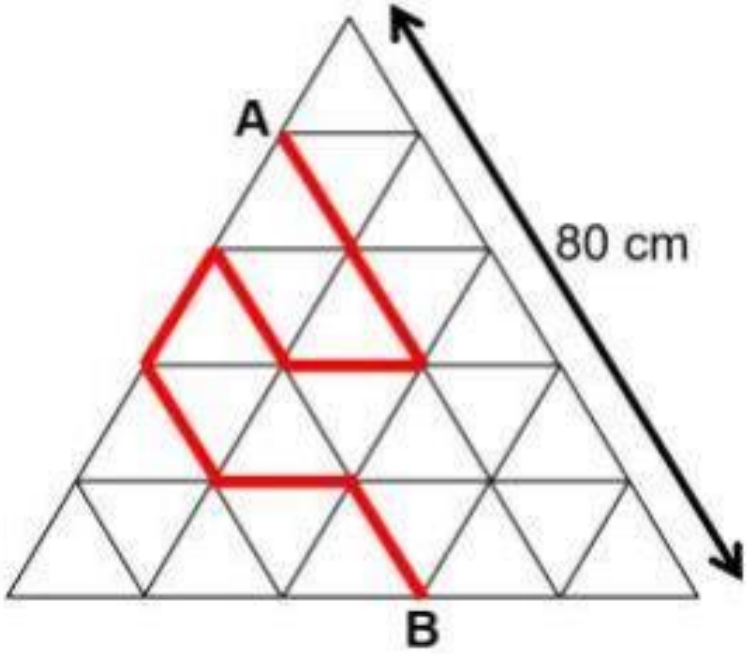
GCSE: Example 12



This square flag measures 60 cm by 60 cm and has 4 lines of reflection symmetry.

Find the value of x such that $\frac{1}{9}$ of the flag is blue.

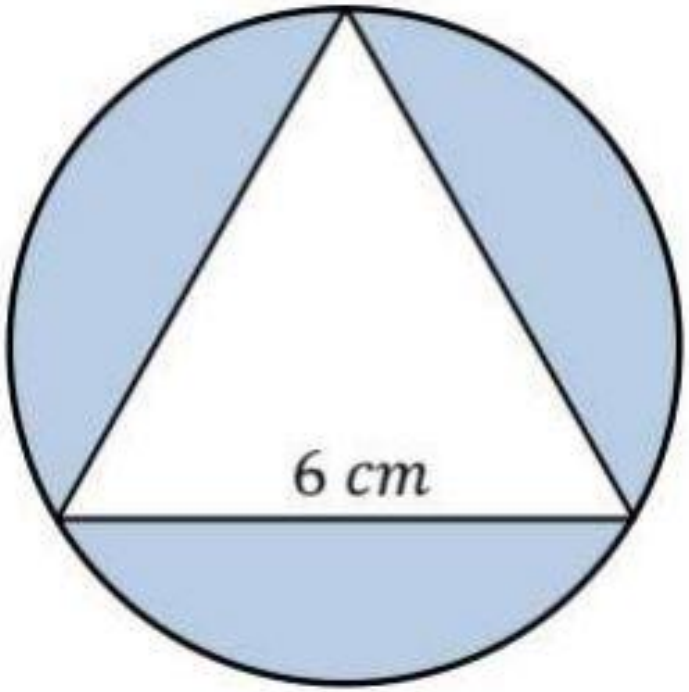
GCSE: Example 13



This pattern is made up of equilateral triangles.

Find the length of the route marked from A to B.

GCSE: Example 14



This diagram shows an equilateral triangle of side length 6 cm drawn inside a circle so that each corner touches the circumference of the circle.

What area of the circle is shaded?

GCSE: Example 17

5	7	6	?
?			10
9	2	4	?

In this rectangle, the numbers along each edge add up to the same total.

The missing numbers are all positive whole numbers.

What are the missing numbers?

What is the total along each edge?

GCSE: Example 21

Maria has five coins in her pocket.

If she picks **four** of the coins

the most she could pick is £4.50

the least she could pick is £2.70

How much money does she have altogether?

GCSE: Example 22

Sam and Max are organising a 60th birthday party for their grandfather.

They wish to invite as many friends and family as possible.

They have £2500 to spend.

One caterer says that the cost is £24 for each person but for over 100 people they offer a 15% discount for each person. The other caterer provides this table:

Number of people	Cost per person
Over 100	£21
75 - 99	£23
50 - 74	£25
Up to 49	£27

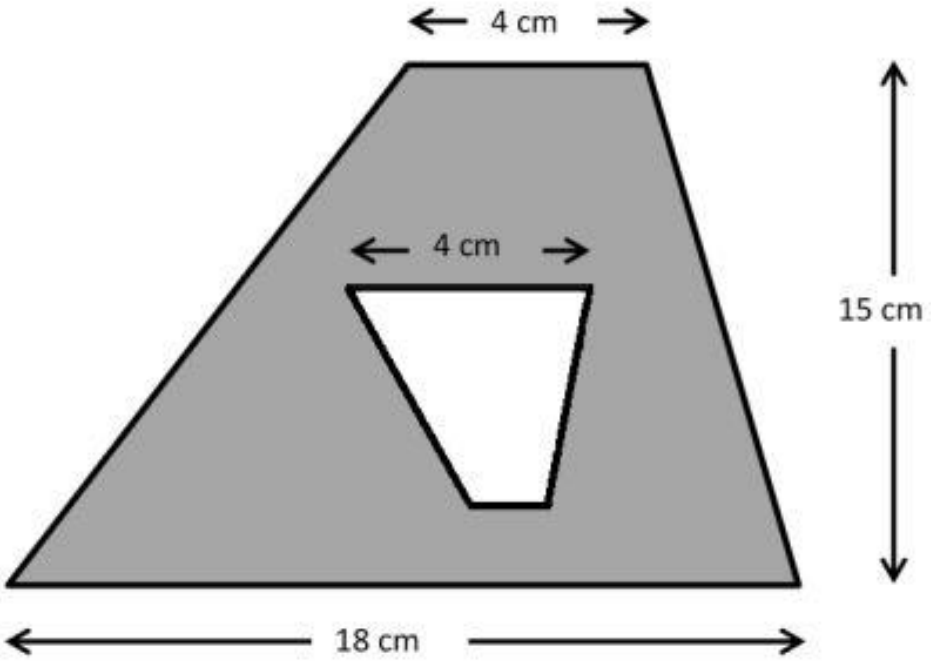
Work out the maximum number of people they can pay for.

Show working to compare the maximum number of people for **both** options.

GCSE: Example 23

The trapezia in this diagram are similar.

Find the shaded area



GCSE: Example 24

A motorway sign says

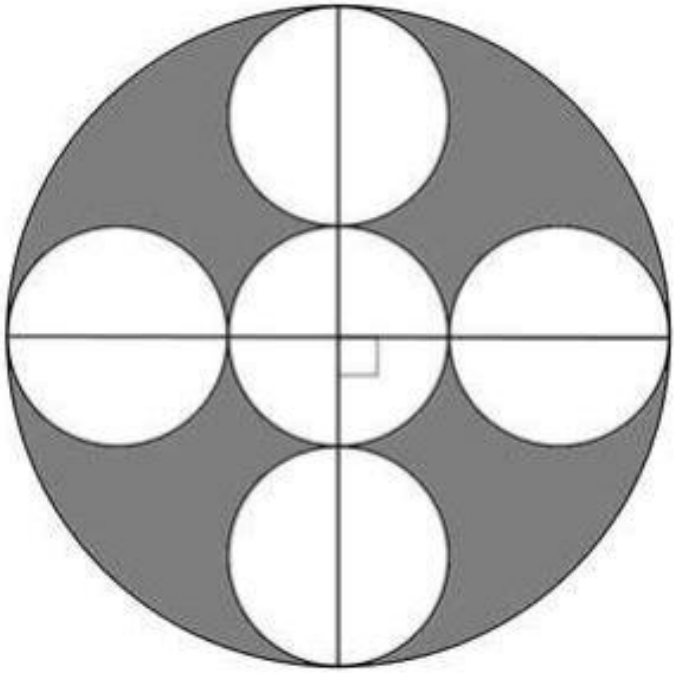
Chetna is driving at 70 miles per hour. If she can maintain that speed, will she reach the junction in the time given on the sign?

GCSE: Example 25

Five identical small circles are drawn inside one large circle as shown in the diagram.

The centres of the small circles all lie on one or both of the diameters shown.

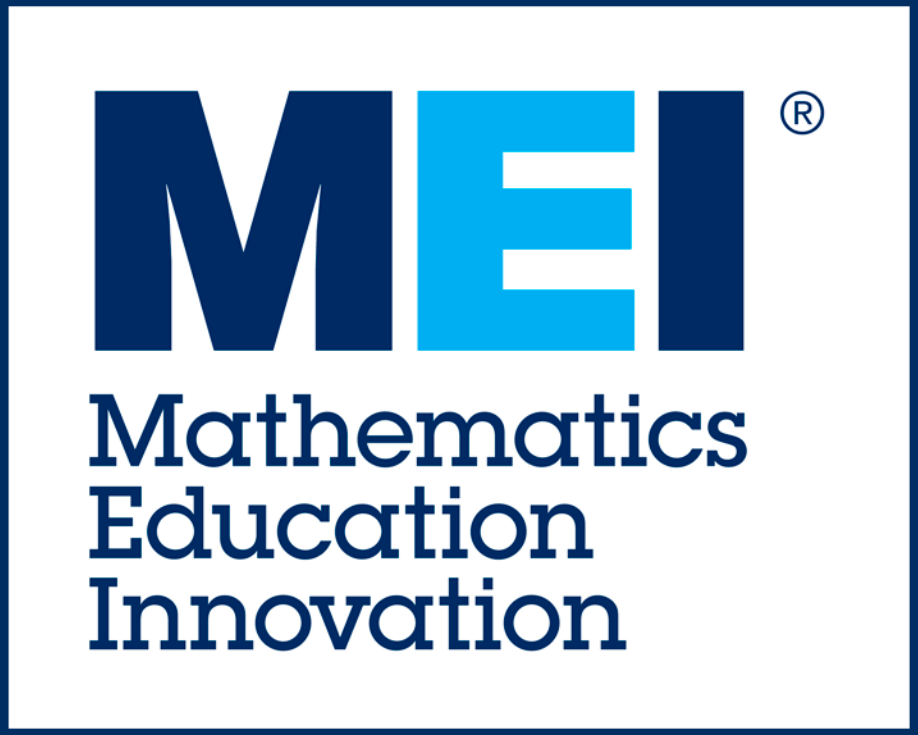
The diameters are at 90° to each other.



Find the fraction of the large circle that is shaded.

About MEI

- Registered charity committed to improving mathematics education
- Independent UK curriculum development body
- We offer continuing professional development courses, provide specialist tuition for students and work with employers to enhance mathematical skills in the workplace
- We also pioneer the development of innovative teaching and learning resources



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