

Writing Stimulating Maths Problems

For GCSE Students

Can you do anything with these?

Some suggestions

Problem 1

Find the highest common factor (HCF) of 54 and 120.

Edexcel IMA1/1H 2025

Two numbers have **24** as their highest common factor (HCF) and **45 360** as their lowest common multiple (LCM).

Find all of the possible values for the two numbers.

Problem 2

Mia pays £25 for 200 oranges.

Mia puts the oranges into bags.

She puts 5 oranges into each bag.

Mia sells all the bags of oranges for £1 each bag.

Work out Mia's percentage profit.

Edexcel IMA1/3H 2025 Q3

Mia pays £25 for 200 oranges.

Mia puts the oranges into bags.

She puts 5 oranges into each bag.

How much would Mia have to charge per bag to make a 5% profit? How much to make a 10% profit?

If the price Mia pays for oranges increases by 2%, and Mia buys 200, what would she have to charge extra per bag to make at least the same profit as she did before the price rise?

Problem 3

ABC is a straight line.

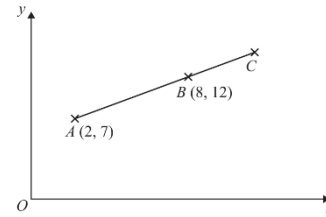
Point A has coordinates (2, 7)

Point B has coordinates (8, 12)

$$BC = \frac{1}{2} AB$$

Find the coordinates of point C.

Edexcel IMA1/3H 2025 Q7



Point A has coordinates (2, 7)

Point B has coordinates (8, 12)

$$BC = \frac{1}{2} AB$$

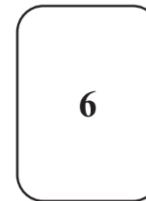
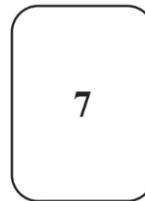
Find the locus of all of the possible positions for point C.

Problem 4

Here are four cards.

There is a number on each card.

Write down the smallest 4-digit even number that can be made using each card only once.



Edexcel IMA1/2F Q5 2022

Here are four cards.

There is a number on each card.



How many numbers can you make using some or all of the cards that are multiples of 3?

How many numbers can you make using some or all of the cards that are multiples of 6?

How many numbers can you make using some or all of the cards that are multiples of 4?

Problem 5

208 bars of chocolate were sold from a shop.

$\frac{1}{4}$ of these bars of chocolate were large bars.

The rest of the bars of chocolate were small bars.

All the large bars of chocolate were sold for £1 each.

All the small bars of chocolate were sold for 60p each.

Work out the total amount of money for which the 208 bars of chocolate were sold.

Give your answer in pounds.

Edexcel IMA1/3F Q7 2022

208 bars of chocolate were sold from a shop.

Some were large bars of chocolate. Some were small bars of chocolate.

All the large bars of chocolate were sold for £1 each.

All the small bars of chocolate were sold for 60p each.

The total amount of money all of the chocolate was sold for was £156

How many of each size of bar were sold? Is there only one answer?

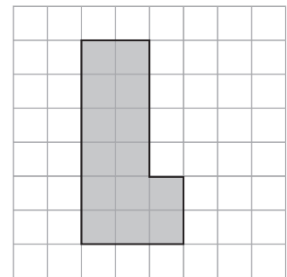
Problem 6

The diagram shows a shape on a centimetre grid.

(a) Find the area of the shape.

(b) Find the perimeter of the shape.

Edexcel IMA1/3F Q6 2023



How many shapes can you draw that have an area of 20 cm^2 and a perimeter of 18 cm on the centimetre grid below?

