

This document will help you to...
Investigate Mathematical Problems!

Maths Problem Solving Part 5

Have you had enough of working on My Maths?

Would you rather get out some pen and paper and investigate maths problems?

THIS BOOKLET IS FOR YOU!

There are 10 problems for you to make your way through. None of them are quick so be patient and don't give up!

GOOD LUCK!

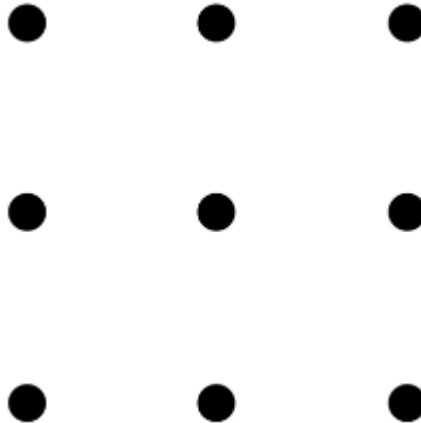


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Triangles

How many of each triangle type can you form by joining three dots?

What triangles are possible or impossible to form? Why?



Scalene

Isosceles

Right-angled

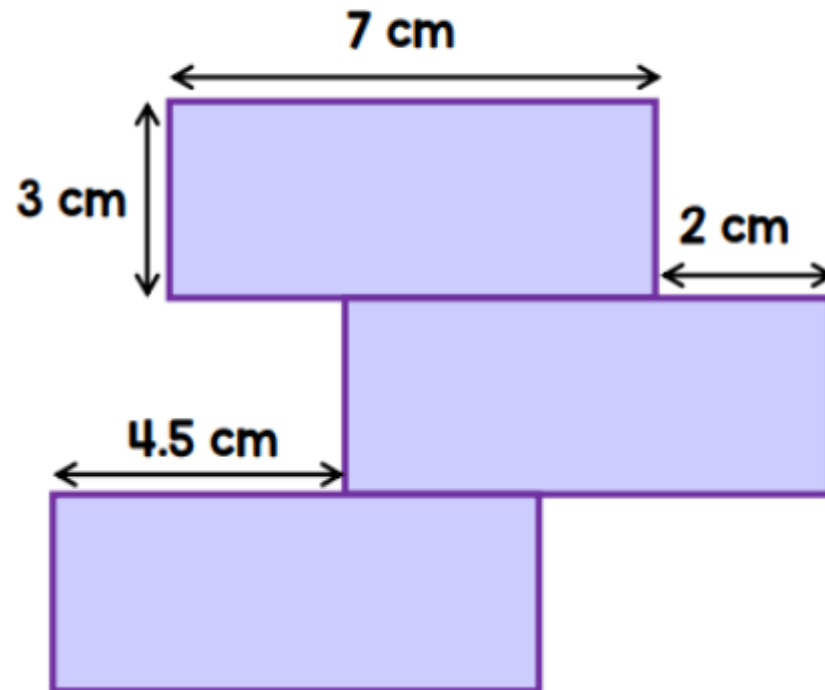
Equilateral



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Perimeter

Three identical rectangles are arranged to make a shape.



What is the perimeter of the shape?



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Area

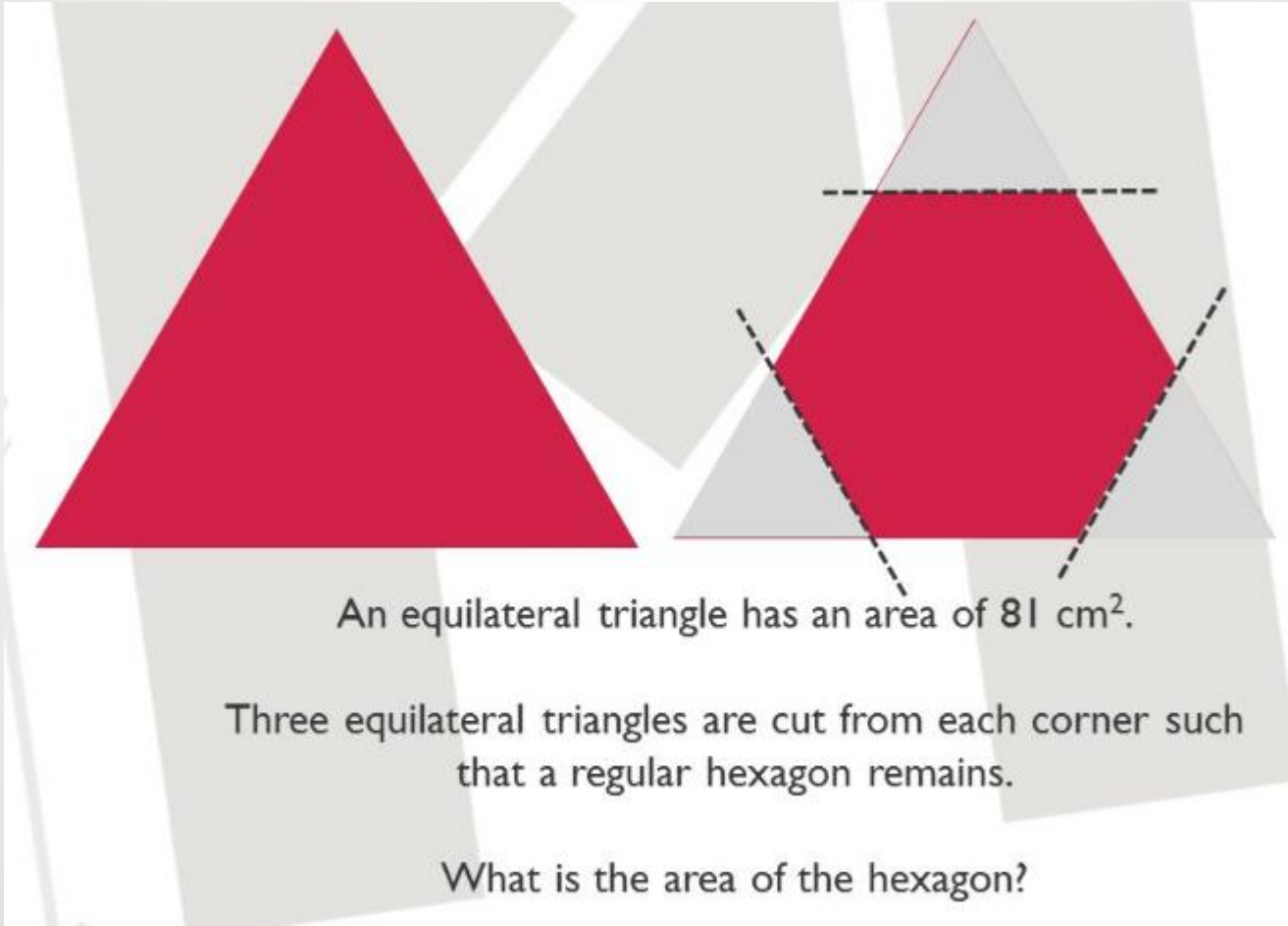


A rectangle is seven times as long as it is wide.
Its perimeter is 48cm.
What is its area?



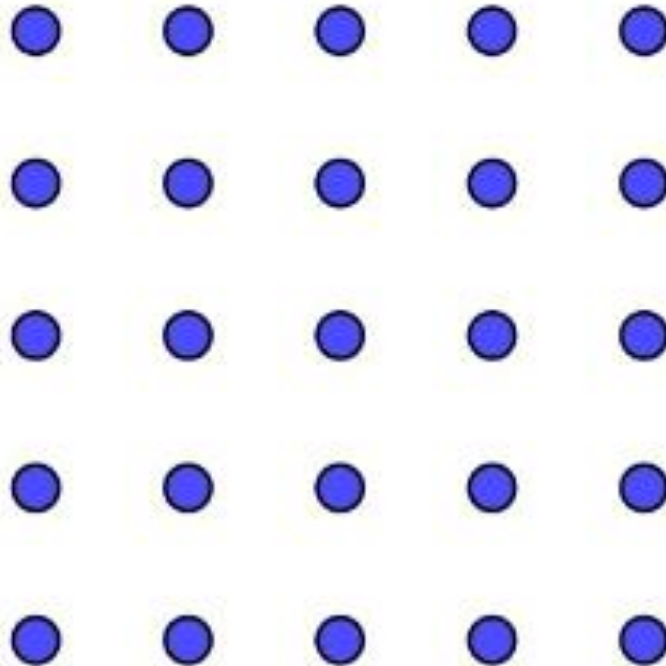
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Cutting Triangles



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Dots

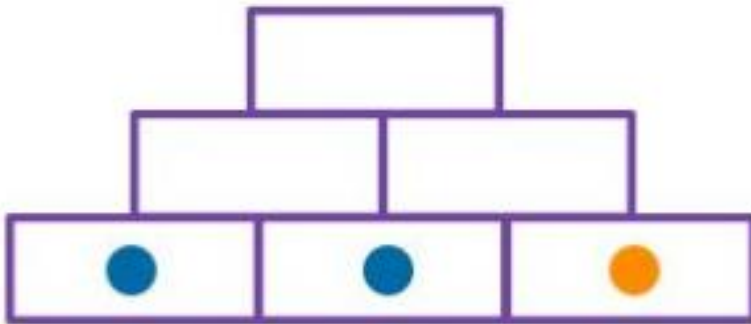


How many different straight lines are there that go through exactly three points of this 5×5 array of points?

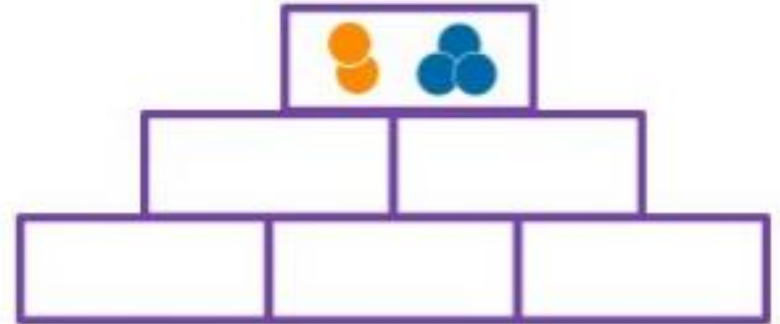


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Picture Pyramids



What combination would you get on the top row by combining the lower counters at each stage?



What could the bottom row have been, given the top combination? Is there more than one answer?

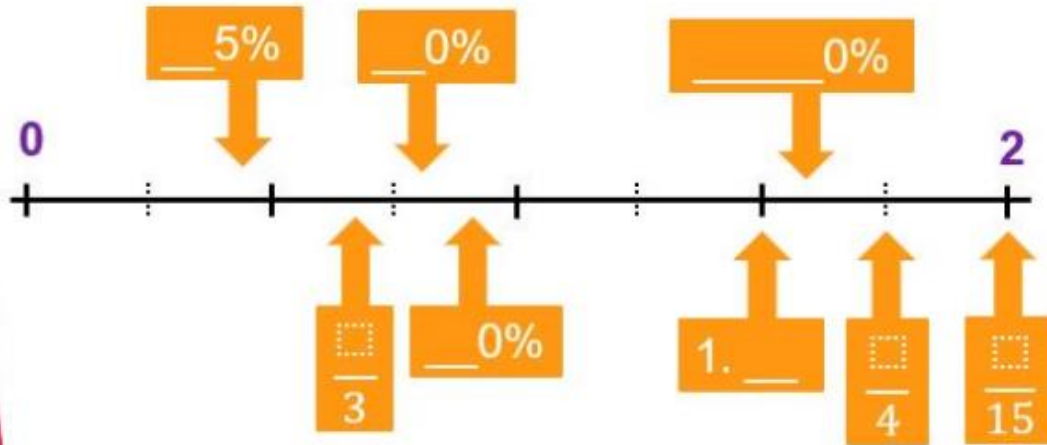


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Number Line

0 1 2 3 4 5 6 7 8 9

Fill in the blanks
on the number
line using the
digits 0-9 only
once each.



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Apples



“How much are the apples?”, Granny Smith asked.
“The first apple costs 52p, the second 51p, and so on”,
replied the greengrocer. “Each apple will cost you a
penny less than the previous apple.”

Granny Smith spent £10 on apples.
How many did she buy?



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What Will Happen?

What will
happen to
the value
of **c** if we...

$$a \div b = c$$

Double the value of **a**

Multiply **b** by 10

Multiply **a** by 100

Multiply **a** and **b** by 10

Halve the value of **b**

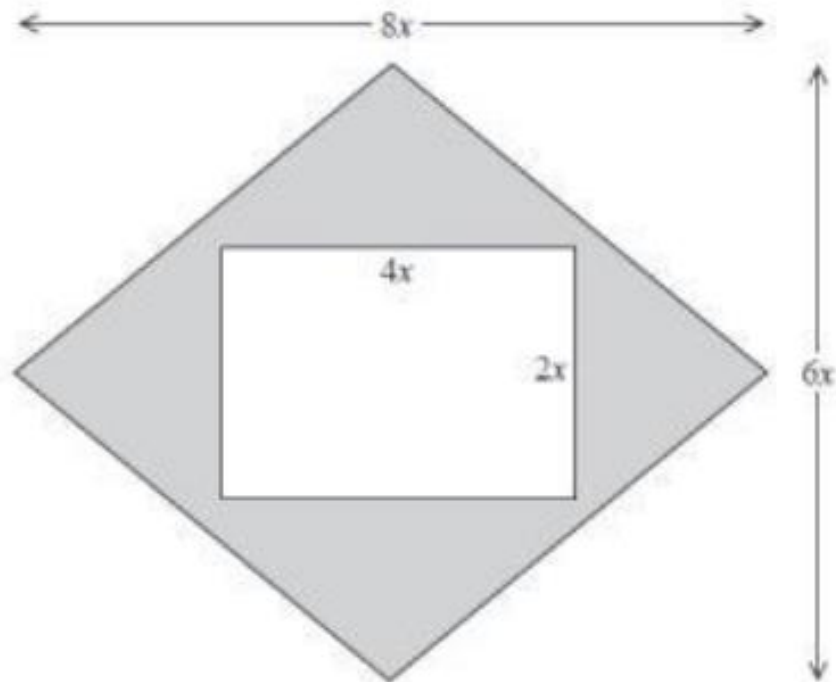
Multiply **a** by 10 and **b** by 100



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Algebraic Area

The diagram shows a metal plate in the shape of a rhombus.



All the measurements are in centimetres.

The unshaded part of the plate is in the shape of a rectangle.

The total area of the shaded part of the plate is the same as the area of a square of side t cm.

Find an expression for t in terms of x .

