MathsJam Shout
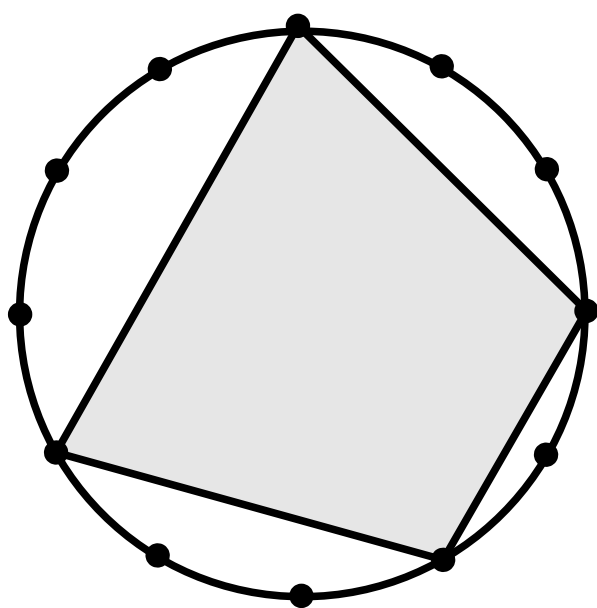
Puzzle — Polygons in Circles

How many different polygons is it possible to make by joining points from 12 equally spaced points on a circle? Reflections and rotations count as the same polygon.

Discuss — Centres in Triangles

How many triangle centres do you know of? **The Encyclopaedia of Triangle Centers** defines 64,214 of them (as of time of writing). Explore the site and see what interesting centres you can find. What does it mean to be a triangle centre?
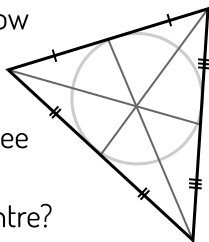
The Encyclopaedia: bit.ly/encyc-tri-cent

Puzzle — Patterns in Numbers

1. Choose any four-digit number.

2. Write the digits in descending order, and then in ascending order, and find the difference between the two new numbers.

3. Repeat step 2 with the answer.

This algorithm is called **Kaprekar's routine**. If you keep repeating step 2, what happens?

What if you choose a different starting number?
What patterns can you find for different numbers of digits?

Puzzle — Spinning in Monopoly

I need to play Monopoly but I've lost the dice. All I have is two blank spinners, one with four sides and one with nine sides.

How can I number the spinners so that adding the numbers they land on gives the same outcomes, with the same probabilities, as adding the numbers shown after throwing two six-sided dice? There are three possible solutions.
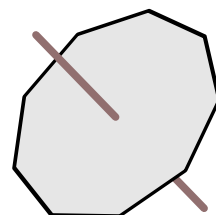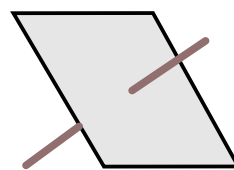
MathsJam Shout is a monthly sheet of ideas for activities to do at a MathsJam night. It's created using suggestions from a different MathsJam each month, and if you'd like to submit suggestions for a month in the future, email **katie@mathsjam.com** for details.

MathsJam is a monthly opportunity for like-minded self-confessed maths enthusiasts to get together in a pub and share stuff they like. Puzzles, games, problems, or just anything they think is cool or interesting. Monthly MathsJam nights happen in over 70 locations around the world, on the second-to-last Tuesday of each month. To find your nearest MathsJam, visit the website at **www.mathsjam.com**.

Complements of Kappa Mu Epsilon
(Math Club)

Instructions: The goal is to fill in the numbers **1** through **81** in the grid so that the numbers increase in the snake where the snake can only go up, down, left, or right. For example, the blank box in the upper left corner must be a 51 because 51 has to be next to 50 and the 50 is stuck with only one blank box next adjacent.

49	48	47	46	45	4	5	6	7
50								8
81								13
76								14
75								19
66								20
65								21
64								28
63	62	61	60	33	32	31	30	29

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