On the Chalkdust Crossnumber, straight lines, and projective geometry

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THE SPATIALS

Too much writing
and the font's poor

You've done too much, too much C1

Consider a line of the form:

$$ax + by + c = 0$$

… and notice:

(a, b, c) looks a lot like a vector.

Abstract Jungle

- Natural question:
  - Given line $ax + by + c = 0$
  - and line $Ax + By + C = 0$
  - Is there a simple link between vectors (a, b, c), (A, B, C) and the point where the lines cross?

A message to you, 2D

- Proof by MathsJam.
- IT'S ONLY THE CROSS PRODUCT!
  - (scaled so the z-coordinate is 1)

It's working for the rat race

- Zeke scampers at 10m/s
- Monty scampers at 8m/s
- Zeke gives Monty a 10 metre head start
- Where does Zeke catch up with Monty?

$$x - 10t = 0$$

$$x - 8t - 10 = 0$$

$$(1, -10, 0) \times (1, -8, -10)$$

$$= (100, 10, 2)$$

Scaled: (50, 5, 1)

Zeke catches up 50 metres away after 5 seconds.

You're wondering now
What to do
Now you know this is the end

- How about the line through two points?
- How about lines through the origin?
- Why does it work?

Enjoy yourself

It's later than you think