

MATHEMATICS AND COMPETITION

AN EXAMPLE

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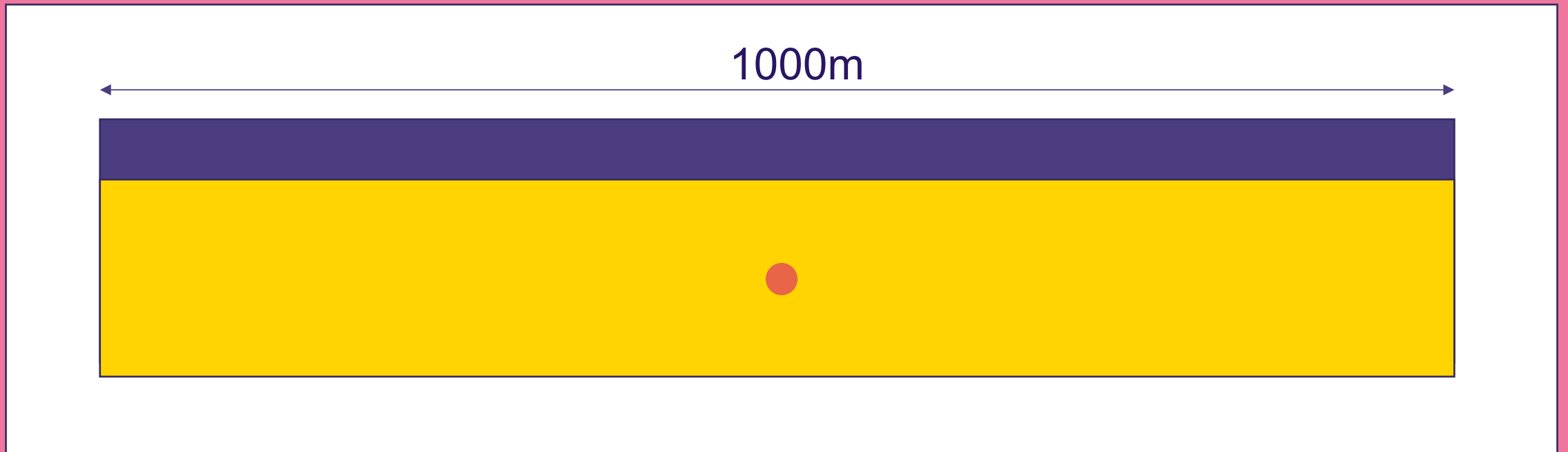
A beach

Example from Ian Stewart

You are selling ice cream on a beach a kilometre long.

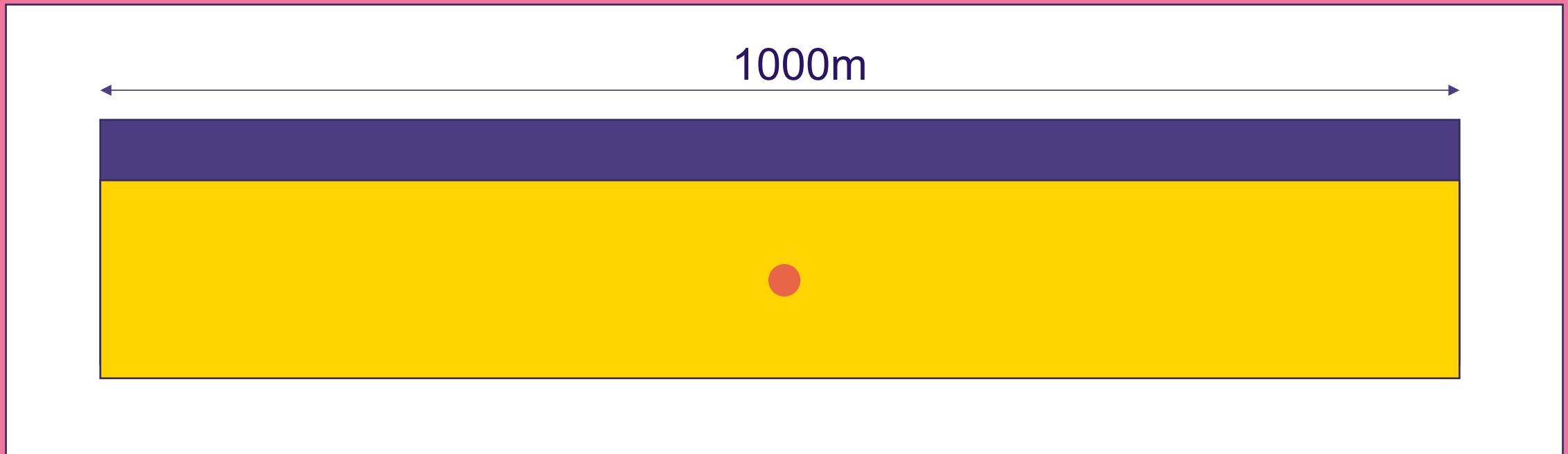
Where do you position your cart to maximise your profit?

Where do you set up your cart?



At the midpoint of the beach

Where do you set up your cart?



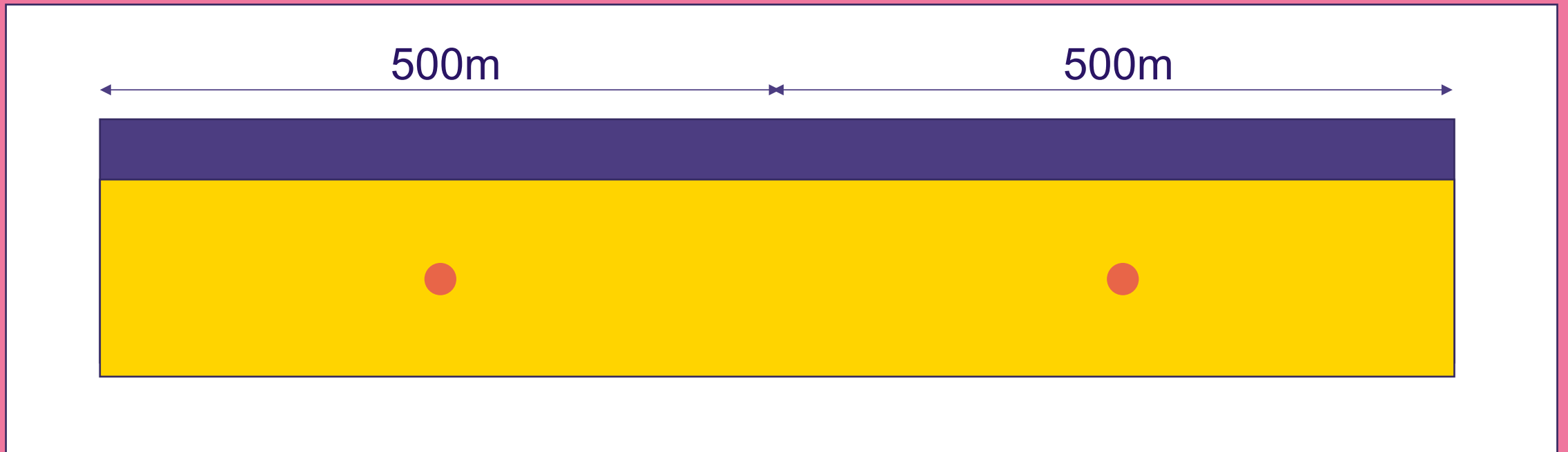
Maximum distance anyone has to walk is 500m

Competition

Suppose now there are two competing ice cream carts

Where will they be positioned?

Two carts

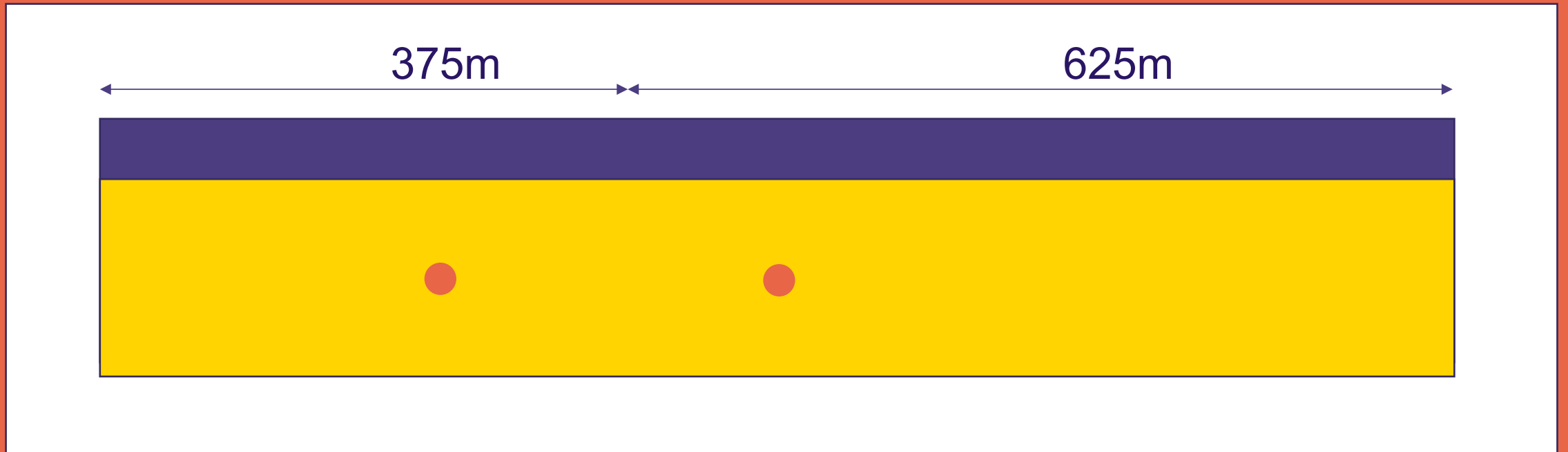


Maximum distance anyone has to walk is 250m

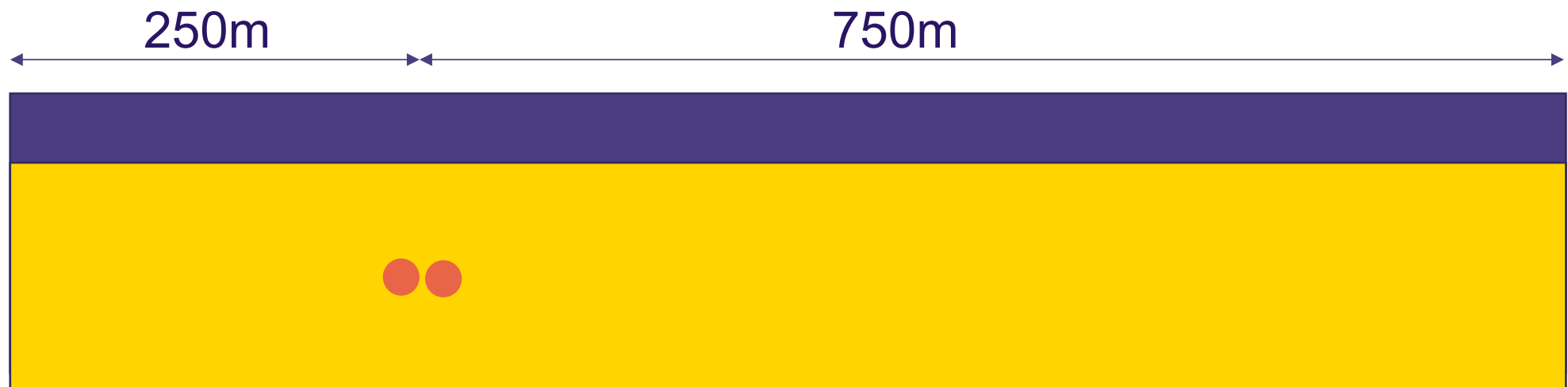
Can I do better?



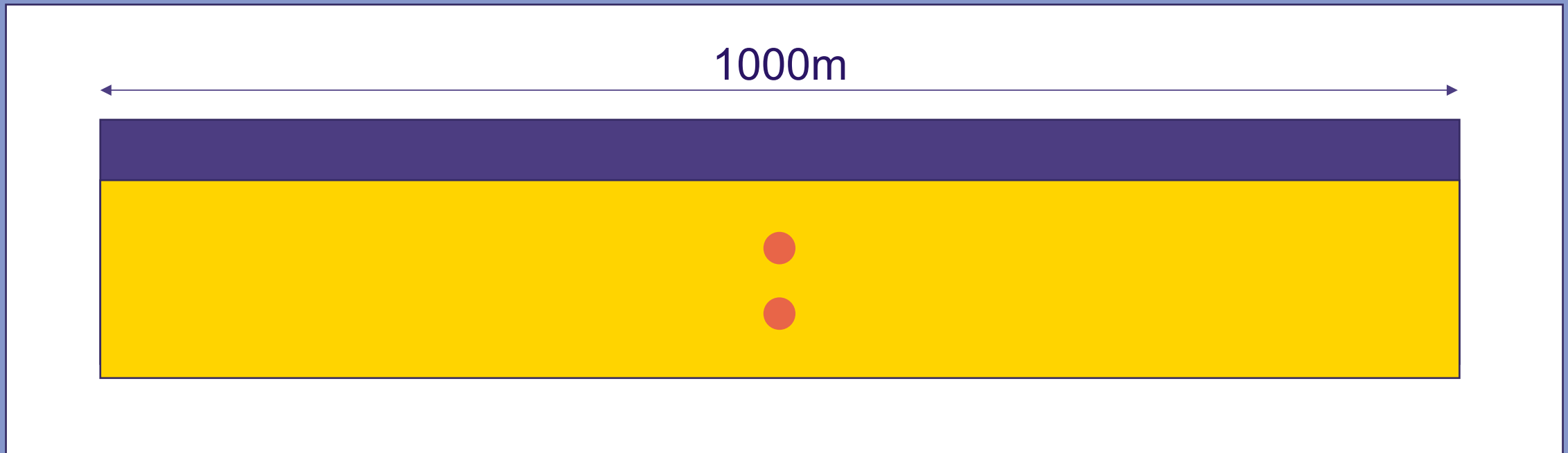
Or



Or even



So with sensible managements what happens is



Maximum distance anyone has to walk is 500m

Buses to Edinburgh

Stagecoach – every hour

Citylink – every hour

Expected wait – 15 minutes

Buses to Edinburgh

Stagecoach – every hour, **on the half-hour**

Citylink – every hour, **on the half-hour**

Expected wait – 15 minutes

Buses to Edinburgh

Stagecoach – every hour, **on the half-hour**

Citylink – every hour, **on the half-hour**

Expected wait – ~~15 minutes~~ **30 minutes**

This story has no moral

If it points out an evil, at any rate it suggests no remedy.

Saki

THANK YOU

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