

Practice questions

1. Ross is an analyst looking at the breakdown of product sales over the last 12 months. For each month, he has revenue from the sales of products A, B and C. He wishes to create a visualisation to show that overall revenue increased due to strong sales of products A and B, despite declining revenue from product C.

Which type of chart is best suited for this?

- Area chart
- Scatter plot
- Stacked column chart
- Line chart
- Waterfall chart

2. A kilometre of fencing costs \$1000 to hire for an hour. How long can 400m of fencing be hired for \$2000?

3. An adventurous archaeologist, when fleeing a cave is faced with four doors, numbered from 1 to 4, and four messages. The messages say:

Message 1: "Doors 1 and 2 are secure"

Message 2: "Exactly two between doors 1, 2 and 3 are secure"

Message 3: "Door 1 is secure"

Message 4: "Door 3 is secure"

The archaeologist knows that exactly one of the messages is a lie and exactly one of the doors is not safe (it would activate a trap). Which door can the archaeologist be sure is safe?

- 1
- 2
- 3
- 4
- Cannot guarantee that there is a secure door

Solutions are in the next page.

SOLUTIONS:

Question 1

Only the Area and Stacked Column charts are able to easily display the sales numbers for each product, as well as the total at the same time, so all other options are not suited. As we wish to view the results over time (as opposed to e.g. comparing this sales breakdown for a specific month, but comparing different countries) an area chart is better suited.

Question 2

We can write down the equation $[\$Cost] = [\$1000/km/hr] * [hours] * [km\ length]$. Rearranging for hours and substituting the cost and length, the answer is $2000/1000/0.4=5$ hours.

Question 3

There is one lie within the messages, and we can assume the rest of the message are true. This means, if there are two statements claiming a door to be secure, at least one of must be true. Messages 1 and 3 both claim door 1 to be secure, thus we choose Door 1.

Additionally, it is possible for Message 1 to be false if door 2 is not secure. This would mean Messages 2 and 4 are true, so in this case door 3 is secure. We know there is exactly one trap, so in this case door 4 is also secure.

Or if Message 1 is true and door 2 is also secure, then Messages 2 and 4 directly contradict each other (one stating door 3 is secure, the other stating it is not – this is fine as we know one of these has to be a lie), and it is not known if door 3 is secure or not. Door 4 is secure if door 3 is not and vice versa.

In conclusion, only door 1 is guaranteed to be safe.