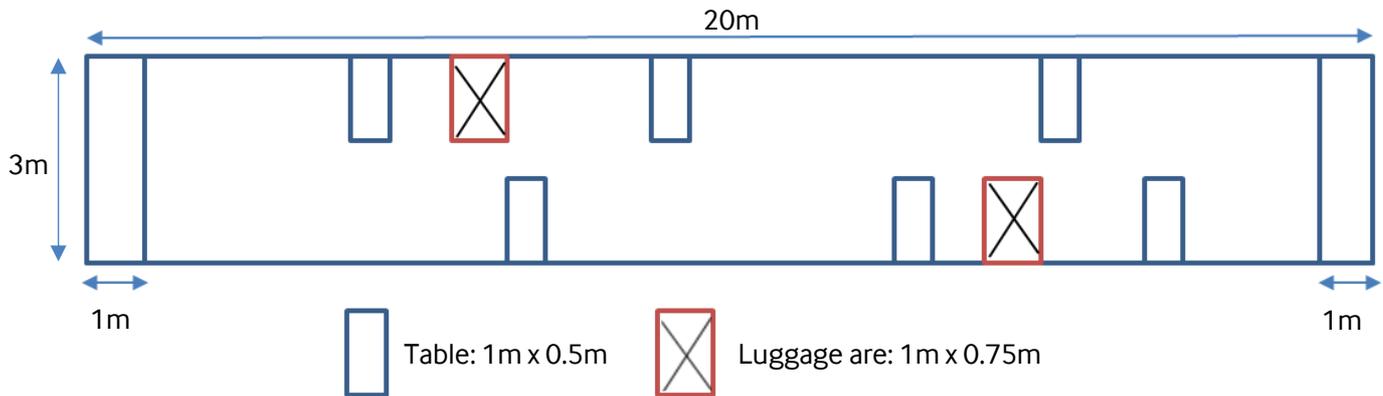

**ONLINE TEST PRACTICE
QUESTIONS**

NEWTON

Numerical Interpretation Practice - Trains

1) A train has 6 identical carriages, each is 3 metres wide and has 1 metre long exits at each end. Seats are installed in pairs either side of an aisle and are spaced every 0.75m along the available carriage length. This is less than the full length as tables and luggage areas use up space. How many seats does a train have?

Diagram of Train Carriage Layout



A) 84

B) 252

C) 360

D) 504

2) Trains travelling long distances have two additional first class carriages which are laid out differently. The carriage is the same size and has the same exit sections at each end, but each passenger gets an individual seat (there are no separate luggage areas or tables). The carriage has three seats per row, separated by 2 aisles. Each seat requires 1.5m of length along the carriage. How many more seats does a train travelling long distance have?

A) 36

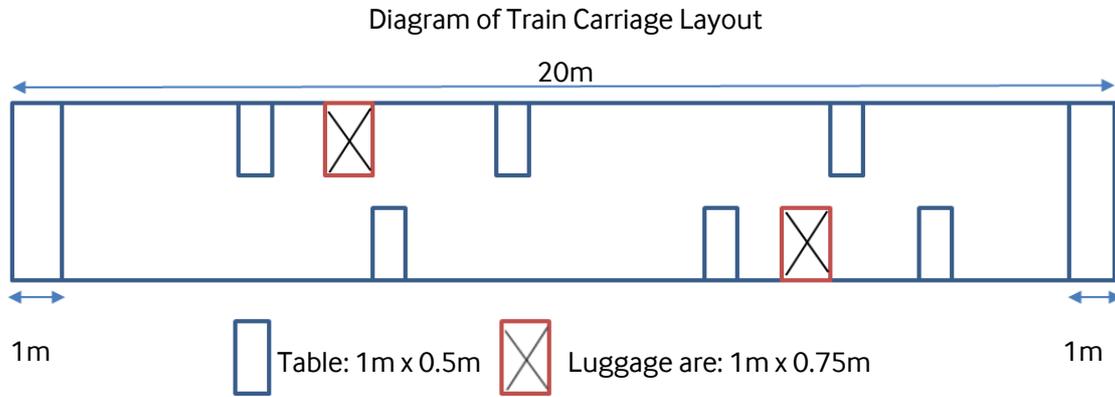
B) 72

C) 90

D) 120

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$$20 - 2 - 0.75 - 1.5 = 15.75m$$

$$\frac{15.75m}{0.75} = 21$$

$$21 \text{ rows} \times 4 \text{ chairs} \times 6 \text{ carriages} = 504$$

$$\frac{20 - 2}{1.2} \times 3 \times 2 \text{ carriages} = 72$$

Data Interpretation Practice Answers – Appliance Repairs UK

1) The pathway through the system with the highest cost is First line team > Engineer visit, costing £53. One of the engineers thinks the first line team should be lost and all calls scheduled straight to the engineers to save money. What % of incoming calls end up costing £53?

Answer = E The number of calls following this path is (80% to first line) * (80% then to engineer) = **64% of calls**

2) In an average year, Appliance Repair UK handle 100,000 calls. Assuming the call centre and engineer teams make up 50% of their costs, what are the total company costs per year to the nearest £1m?

Answer = D 80% x 20% of calls are resolved by the first line team. 16% x 100,000 calls x £3/call = £48,000
20% go direct to engineer. 20% x 100,000 calls x £50/visit = £1,000,000
64% go via first line and engineers. 64% x 100,000 calls x £53/call = £3,392,000
Total cost of call centre + engineers = £4.440m
Which is 50% of total company costs, therefore:

Total company costs per year = £8.88m

3) Employing enough extra resource to guarantee all calls can be answered by the first line team would cost £90,000/year (this includes the additional £3 per call cost). What would be the extra profit from implementing this change? Assume the outcome percentages stay constant.

Answer = C 20,000 calls that currently go straight to engineer would go to the first line team

Saving: 20,000 * £50 = £1,000,000
Additional calls resolved by first line team (at no extra cost) = 20,000 * 20% = 4,000
Cost of calls resolved by both teams = 20,000 * 80% * £50 = £800,000
Cost to implement = £90,000
Total costs = £890,000
Extra profit = Saving – Costs, therefore:

Extra profit = £110k