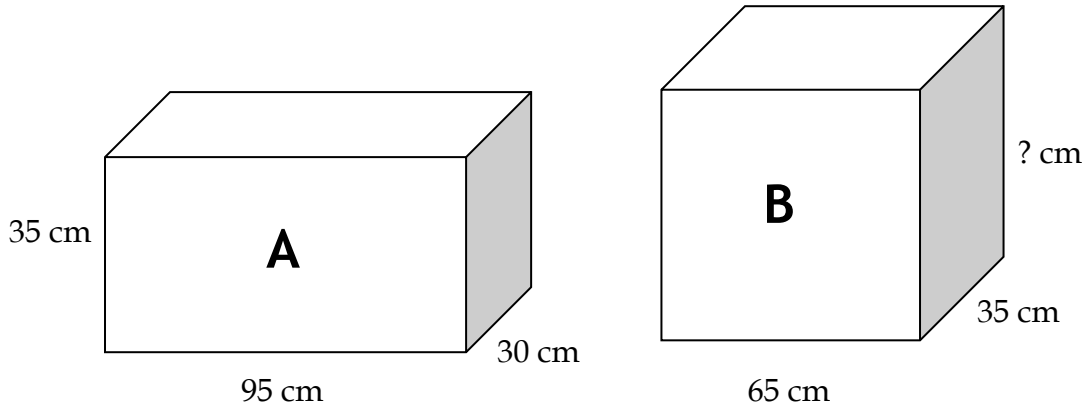




## FA Problem Solving Questions - Set 3c

21c. The diagram shows two fish tanks, each in the shape of a cuboid.

Diagram NOT  
accurately drawn



Finley fills both fish tanks with water.  
Fish tank B holds 20% more than tank A.  
How high is fish tank B?

You must show all your calculations.

(4 marks)

22c. A basic calculator costs £3  
A scientific calculator costs £5  
Julie spends exactly £96 and bought 26 calculators.

Work out how many of each calculators Julie bought.

(3 marks)

23c. A customer who cancels a holiday with Funtours has to pay a cancellation charge.  
The cancellation charge depends on the number of days before the departure date the customer cancels the holiday.

The cancellation charge is a percentage of the cost of the holiday.  
The table shows the percentages.

Number of days before the departure date the customer cancels the holiday	Percentage of the cost of the holiday
29-55	30%
22-28	55%
15-21	65%
4-14	85%
3 or less	100%

The cost of Amy's holiday was £1300  
She cancelled her holiday 13 days before the departure date.

(a) Work out the cancellation charge she had to pay.

(2 marks)

The cost of Carol's holiday was £850

She cancelled her holiday and had to pay a cancellation charge which was half the amount paid by Amy.

(b) Give the range of the number of days in which Carol cancelled her holiday.

(3)

24c. This is a list of ingredients for making a pear & almond crumble for 4 people.

Ingredients for 6 people: 80 g plain flour 60 g ground almonds 90 g soft brown sugar 60 g butter 4 ripe pears
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Jessica wants to make a pear & almond crumble for as many people as possible. Here is a list of the amount of each ingredient Jessica has in her cupboard.

350 g plain flour  
280 g ground almonds  
415 g soft brown sugar  
255 g butter  
20 ripe pears

How many people can Jessica make crumble for? You must show all of your working.

(4 marks)

25c. Peter works out the cost of the gas he used last year.

At the start of the year, the gas meter reading was 11527 units.

At the end of the year, the gas meter reading was 15106 units.

Each unit of gas he used cost 47p.

He used 1200 units during the 6 warmer months from April to Sept

Work out the mean cost per month of the gas he used in the colder months.

(5 marks)

26c. Stephen imports cars from the USA. He sells them in the UK.

He has just bought a car in the USA costing \$31 000.

It cost him £850 to import the car to the UK.

Stephen sells the car for £28,373 and makes a profit of 20% on his total costs.

Work out exchange rate as £1 = \$??

(3 marks)

27c. Stuart and Helen play a game with red and blue cards.

Red cards are worth 4 points each.

Blue cards are worth 3 point each.

Stuart has  $r$  red cards and  $b$  blue cards.

Helen has 3 less red cards as Stuart and also has some blue cards.

The total number of points of Stuart and Helen's cards is  $8r + 3b$

How many blue card does Helen have?

(4 marks)

28c. The Hawshaw Summer Fete is running a competition.

You buy a scratch card with 9 squares covered up.

Under the 9 squares on each card, randomly placed are 4 stars, 3 hearts and 2 LOSE.

Each scratch card costs £1

You scratch off two squares.

You win £2.50 if 1 star and 1 heart is revealed.

Michelle buys a scratch card.

Work out the probability that this will be a winning scratch card.

(3)

All of the proceeds go to charity.

If £400 is raised for charity at the Fete then estimate the number of tickets sold.

(4)

29c. Angel Ltd manufactures components for washing machines. They manufacture 9 000 components each day.

On average 234 components will not be within the tolerance of one tenth of a millimetre each day.

Work out an estimate of the probability that a component will be made within a tolerance of one tenth of a millimetre.

(3 marks)

30c. Here are three fractions,  $\frac{4}{5}$  and  $\frac{6}{8}$  and  $\frac{7}{9}$

Put these three fractions in order, smallest first.

You must show clearly how you got your answer.

(3 marks)

