**Crossover questions Foundation / Higher Tier**

**Answer ALL questions.**

**Write your answers in the spaces provided.**

**You must write down all the stages in your working.**

**21/1** The table shows some information about the weights of 50 potatoes.

|  |  |
| --- | --- |
| **Weight (*w* grams)** | **Frequency** |
| 10 < *w* ≤ 20 | 6 |
| 20 < *w* ≤ 30 | 21 |
| 30 < *w* ≤ 40 | 13 |
| 40 < *w* ≤ 50 | 7 |
| 50 < *w* ≤ 60 | 3 |

Iveta drew this frequency polygon for the information in the table.

The frequency polygon is **not** fully correct.

Write down **two** things that are wrong with the frequency polygon.

1....................................................................................................................................................

2....................................................................................................................................................

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**22/2** The length of a pencil is 128 mm correct to the nearest millimetre.

Complete the error interval for the length of the pencil.

......................... mm ⩽ length < ......................... mm

**(Total for Question 22/2 is 2 marks)**

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**23/3** Tom and Adam have a total of 240 stamps.

The ratio of the number of Tom’s stamps to the number of Adam’s stamps is 3 : 7

Tom buys some stamps from Adam.

The ratio of the number of Tom’s stamps to the number of Adam’s stamps is now 3 : 5

How many stamps does Tom buy from Adam?

You must show all your working.

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**(Total for Question 23/3 is 4 marks)**

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**24/4** Each person in a fitness club is going to get a free gift.

Stan is going to order the gifts.

Stan takes a sample of 50 people in the fitness club.

He asks each person to tell him the gift they would like.

The table shows information about his results.

|  |  |
| --- | --- |
| **Gift** | **Number of people** |
| sports bag | 17 |
| gym towel | 7 |
| headphones | 11 |
| voucher | 15 |

There are 700 people in the fitness club.

(i) Work out how many sports bags Stan should order.

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**(2)**

(ii) Write down any assumption you made **and** explain how this could affect your answer.

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**(1)**

**(Total for Question 24/4 is 3 marks)**

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**25/5** Here are six graphs.

Write down the letter of the graph that could have the equation

(*a*) *y* = *x*3

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**(1)**

(*b*) *y* = 

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**(1)**

**(Total for Question 25/5 is 2 marks)**

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**26/6** The *n*th term of a sequence is 2*n*2 − 1

The *n*th term of a different sequence is 40 − *n*2

Show that there is only one number that is in both of these sequences.

**(Total for Question 26/6 is 3 marks)**

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**27/7** Work out (3.42 × 10−7) ÷ (7.5 × 10−6)

Give your answer in standard form.

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**(Total for Question 27/7 is 2 marks)**

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**28/8** The number of days, *d*, that it will take to build a house is given by

*d* = 

where *n* is the number of workers used each day.

Ali’s company will take 40 days to build the house.

Hayley’s company will take 30 days to build the house.

Hayley’s company will have to use more workers each day than Ali’s company.

How many more?

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**(Total for Question 28/8 is 3 marks)**

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**29/9** The diagram shows a cube and a cuboid.

The total surface area of the cube is equal to the total surface area of the cuboid.

Janet says,

“The volume of the cube is equal to the volume of the cuboid.”

Is Janet correct?

You must show how you get your answer.

**(Total for Question 29/9 is 5 marks)**

**TOTAL FOR PAPER IS 26 MARKS**

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