Name:

Exam Style Questions

Using Samples

Corbettmaths

Equipment needed: Pen, Calculator

Guidance

1. Read each question carefully before you begin answering it.
2. Check your answers seem right.
3. Always show your workings

Video Tutorial

www.corbettmaths.com/contents

Video 281a

Answers and Video Solutions

1. A council carried out a survey to find how many people from a village have visited a library in the past 6 months.

The table shows the results.

	Number of people
Yes	15
No	5

The population of the village is 240

(a) Estimate how many people from the village have visited the library in the past 6 months.

$\frac{15}{20} = \frac{3}{4}$

$240 \div 4 = 60$

$60 \times 3 = 180$

$\frac{3}{4}$ of 240

180

(2)

The survey was carried out by asking a group of over 60 year olds.

(b) Explain why this sample may not provide reliable for the entire village.

They may not be representative of the entire village e.g. Over 60s may go to the library more as they have more free time

(1)

2. A teacher wants to find out how students travel to school.
She surveys 50 students and here are the results.

	Number of students
Bus	27
Car	14
Walk	9

(a) Work out the percentage of students in the teacher's survey that walked to school.

$\frac{9}{50} = \frac{18}{100}$

18 .....%

(1)

400 students attend the school.

(b) Estimate how many travel to school by car.

$\frac{14}{50} \overset{\times 8}{=} \frac{112}{400}$

$400 \div 50 = 8$

112 .....

(2)

3. Natalie owns a coffee shop and wants to find out how many disposable cups she will need in June.

She takes a sample of 200 drinks and records the size of cup used.

The table shows information about her results.

	Cups used
Small	58
Regular	110
Large	32

(a) What fraction of the drinks in the sample used a regular cup?
Give your answer in its simplest form.

$\frac{110}{200} = \frac{11}{20}$

$\frac{11}{20}$

.....

(1)

In June, Natalie sold a total of 6000 drinks in disposable cups.

(b) Work out how many large cups Natalie should have used.

large: $\frac{32}{200} = \frac{4}{25}$

$6000 \div 25 = 240$

$240 \times 4 = 960$

960

.....

(2)

(c) Write down an assumption you made when calculating your answer to (b)

That the sample was representative of the drinks sold in June.

.....

(1)

4. A researcher wanted to find people's opinion on a new wind turbine being built in a village.

He interviewed 5 people from the neighbouring town.

State **two** reasons why his sample may not provide reliable results.

Reason 1 As the people sampled are not from the village, they are less likely to object.

Reason 2 The sample is very small, so it may not be representative.

(1)

5. There are 30 students in a class.
18 of the students have school dinners.

Altogether 960 students attend the school.

Work out an estimate of the total number of students that have school dinners.

$\frac{18}{30} = \frac{3}{5}$

$960 \div 5 = 192$

$192 \times 3 = 576$

576

(3)

6. A headteacher wants to introduce a new school uniform.

He asks a sample of 40 students what colour tie they would like.

The table shows information about his results.

Colour	Number of students
Blue	7
Green	8
Red	16
Yellow	9

460 students attend the school.

(a) Work out an estimate of how many of the 460 would like a red tie.

$\frac{16}{40} = \frac{2}{5}$

$460 \div 5 = 92$

$92 \times 2 = 184$

184

(3)

(c) Write down an assumption you made.

The sample is representative of the whole school.

(1)

7. A box contains white, blue and green sweets.
In total, there are 4500 sweets in the box.

Jessica wants to find out how many blue sweets are in the box without counting them all.

Jessica selects 20 sweets at random from the box.
13 of the sweets are blue.
She then returns the 20 sweets to the box.

(a) Work out an estimate of how many blue sweets are in the box.

$\frac{13}{20}$ of 4500

4500 ÷ 20 = 225

225 × 13 = 2925

2925

(3)

(b) Explain how Jessica can improve the accuracy of her estimate.

Choose more than 20 sweets, maybe 50 or 100.

(1)

8. Bethan creates a new travel company.
She plans to offer holidays to four different countries: France, Portugal, Spain and Turkey.

She surveys 250 people and asks which of the four countries they would most like to visit.

Here are the results.

Destination	Number of people
France	74
Portugal	48
Spain	91
Turkey	37

Bethan expects her company to make 12000 bookings in the first year.

Work out an estimate of how many bookings will be for Spain.

$\frac{91}{250}$ of 12000

$12000 \div 250 = 48$

$48 \times 91 = 4368$

4368

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(3)