**Maths test**

**Q1: percentages**

In a group of 40 psychology A level students, 30% had a grade 7 or above at GCSE maths. How many people in that group does this represent?

**Q2: percentages**

In the same group as in question 1, 40% of the 40 students applied to study psychology at University. How many people would this be?

**Q3: percentages**

After treatment using cognitive behavioural therapy for 80 people with a diagnosis of major depressive disorder, 56 had not suffered a depressive episode for the first six months. What would this be expressed as a percentage?

**Q4: decimals**

In the study of short term memory (STM), researchers found that when participants were presented with three letter groups called trigrams (for example, GTK, NDT etc.) **90%** could be remembered after a 3 second pause, but less than **10%** could be recalled after a pause of 18 seconds. The researchers concluded that for most people, the duration for information in STM lasts for up to 18 seconds before it decays.

Write the two percentages presented here as decimals

**Q5: fractions**

How would you write 20% as a fraction?

**Q6: fractions**

How would you write 0.75 as a fraction?

**Q7: ratios**

If we conducted a study into gender where 32 identified as females and 8 identified as males, how would this be expressed as a ratio?

**Q8: estimation**

Decide which estimation below is closest to the actual answer. Do not use a calculator

Approximately, what is 65% of 349762

1. 125000 b) 97000 c) 168000 d) 299000 e) 227000

**Q9: probability**

In most cases, a psychologist will accept the results of an experiment if inferential statistics show there to be less than a 5% probability of the results occurring by chance. Decide which answer below represents a less than 5% probability.

1. p<0.5 b) p>0.005 c) p<0.005 d) p>0.05 e) p<0.5 f) p<0.05

**Q10: formula**

At a clinic specialising in eating disorders, the nurse was working out a patient’s BMI after treatment. The formula for BMI is (m/h)/h where ‘m’ is the mass in kg, and ‘h’ is height in metres. The patient was weighed as 69kg with a height of 1.71 metres. What is his BMI? (to 1dp)

**Q11: Measures of central tendency (averages)**

In a memory test, participants were asked to recall a learned list of 20 nouns in any order 1 minute after learning. However, when working out the mean average, the psychologist gave an incorrect value? What mistake did they make?

7, 6, 5, 8, 12, 14, 12, 13, 15, 12, 5, 8, 9, 5, 6, 8, 9, 9, 12, 7 mean = 182/19 = 9.58

1. they accidently gave the median average
2. they added up the scores incorrectly giving an incorrect total
3. they miscounted the number of scores
4. they should have put the numbers in chronological order
5. none of the above, the answer is actually correct

**Q12: measures of central tendency (averages)**

7, 6, 5, 8, 12, 14, 12, 13, 15, 12, 5, 8, 9, 5, 6, 8, 9, 9, 12, 7

What would the accurate mean be? (to 1dp). Use a calculator

**Q13: Measures of central tendency (averages)**

The psychologist placed the scores in chronological order to make other calculations easier

5, 5, 5, 6, 6, 7, 7, 8, 8, 8, 9, 9, 9, 12, 12, 12, 12, 13, 14, 15

Can you work out the median of this data set?

**Q14) Measures of central tendency (averages)**

5, 5, 5, 6, 6, 7, 7, 8, 8, 8, 9, 9, 9, 12, 12, 12, 12, 13, 14, 15

What is the mode of the data set?

**Q15) Measure of dispersion (spread)**

What is the range of the data set?

5, 5, 5, 6, 6, 7, 7, 8, 8, 8, 9, 9, 9, 12, 12, 12, 12, 13, 14, 15

**Q16) measures of dispersion (spread)**

A Psychologist recorded the IQ scores of infants that had grown up in foster care in the UK and compared these with infants that had grown up in Romanian orphanages. She found that the mean averages for the UK infants were 97 and for the Romanian infants were 82. She also found that the standard deviation for the UK infants was 9.8 and for the Romanian infants was 9.4. Which two conclusions below accurately reflects these scores

1. there was on average a higher IQ score in the foster care infants than the orphanage infants
2. the population of Romania tend to have a lower IQ than in the UK
3. the spread of IQ scores was approximately equal between the two samples
4. there was significantly more variation in IQ scores in the UK sample than the Romanian sample

**Q17: correlations**

Which of these correlational coefficients shows a strong positive correlation?

1. 0.45 b) – 0.90 c) 100 d) 0.86 e) 0.1

**Q18: correlations**

What coefficient would represent a perfect negative correlation?

**Q19: graphs**

Which graph is not appropriate for use with continuous data?

1. bar chart b) histogram c) frequency polygon

**Q20: graphs**

When using a frequency polygon, the x axis represents the class intervals and the y axis represents the frequency?

1. True b)False