Psychology 1 Tutorial Workbook
2014-2015
(PSYL08001/PSYL08007/PSYL08008)

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Your Tutorial Session, Day & Time:

Your Tutor’s Name:

Tutor contact:

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<th>Date</th>
<th>Group A Tutorials in Weeks 3/5/7/9</th>
<th>Group B Tutorial in Weeks 4/6/8/10</th>
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<tbody>
<tr>
<td>1</td>
<td>15/9/14</td>
<td>Complete and submit the differential psychology online questionnaire. Sign up to one of the labs in week 4.</td>
<td>Complete and submit the differential psychology online questionnaire. Sign up to one of the labs in week 3.</td>
</tr>
<tr>
<td>2</td>
<td>22/9/14</td>
<td><strong>Study Skills</strong>: Complete activity 1 (note taking).</td>
<td><strong>Study Skills</strong>: Complete activity 1 (note taking).</td>
</tr>
<tr>
<td>3</td>
<td>29/9/14</td>
<td><strong>Tutorial</strong>: Differential Psychology.</td>
<td><strong>Lab</strong>: Differential psychology</td>
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<tr>
<td>4</td>
<td>6/10/14</td>
<td><strong>Lab</strong>: Differential psychology</td>
<td><strong>Tutorial</strong>: Differential Psychology.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Study Skills</strong>: Complete activity 2 (finding a journal article).</td>
<td><strong>Study Skills</strong>: Complete activity 2 (finding a journal article).</td>
</tr>
<tr>
<td>5</td>
<td>13/10/14</td>
<td><strong>Tutorial</strong>: Biological.</td>
<td><strong>Lab</strong>: Hypnosis</td>
</tr>
<tr>
<td>6</td>
<td>20/10/14</td>
<td><strong>Lab</strong>: Hypnosis</td>
<td><strong>Tutorial</strong>: Biological.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Study Skills</strong>: Complete activity 3 (literature searching).</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>27/10/14</td>
<td><strong>Tutorial</strong>: Methodology.</td>
<td><strong>Lab</strong>: Methodology</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Study Skills</strong>: Submit activity 3 (literature searching) to tutor.</td>
<td><strong>Study Skills</strong>: Complete activity 3 (literature searching)</td>
</tr>
<tr>
<td>8</td>
<td>3/11/14</td>
<td><strong>Lab</strong>: Methodology</td>
<td><strong>Tutorial</strong>: Methodology.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Study Skills</strong>: Complete and submit activity 4 (referencing) online to Turnitin.</td>
<td><strong>Study Skills</strong>: Submit activity 3 (literature searching) to tutor. Complete and submit activity 4 (referencing) online to Turnitin.</td>
</tr>
<tr>
<td>9</td>
<td>10/11/14</td>
<td><strong>Tutorial</strong>: Social</td>
<td><strong>Lab</strong>: Social</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Study Skills</strong>: Receive feedback on referencing from tutor.</td>
<td><strong>Study Skills</strong>: Receive feedback on referencing from tutor.</td>
</tr>
<tr>
<td>10</td>
<td>17/11/14</td>
<td><strong>Lab</strong>: Social</td>
<td><strong>Tutorial</strong>: Social.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>SUBMIT ESSAY IN LEARN THROUGH TURNITIN – DEADLINE 2 PM, FRIDAY 21 NOVEMBER</strong></td>
<td><strong>SUBMIT ESSAY IN LEARN THROUGH TURNITIN – DEADLINE 2 PM, FRIDAY 21 NOVEMBER</strong></td>
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</table>
Introduction
This workbook will tell you everything you need to do in Psychology 1 in addition to attending the lectures and writing the essays, as described in the electronic course handbook, to be found at:

http://www.psy.ed.ac.uk/psy_students/undergraduate/course_handbooks.php

You will write in this workbook. You will need to take it to tutorials and to labs to get marks! Keep it safe! If you need to replace it, download it from the handbooks URL above.

If you take Psychology 2 in Year 2, it will be useful to re-read the introductory statistics explanations and exercises you carried out in this workbook.

There are three aspects to the tutorial section of Psychology 1. These are:

- Formal tutorial sessions (one per fortnight, starting after Week 2)
- Online study skills sessions (four per semester)
- Labs (four per semester)

N.B. Tutorial and lab participation together make up 12% of your overall final mark.

About the tutorials
The tutorials will:
- Complement the lectures
- Help the students meet each other and learn to discuss things together
- Help students develop their understanding of psychological research
- Help students develop and apply generic study skills in psychology
- Equip students with specific skills required for future studies in psychology

About the labs
The labs will:
- Complement the lectures
- Help the students meet each other and learn to cooperate and discuss issues
- Help students understand the real complexity of the behaviours that psychologists research
- Give students hands-on experience with techniques that make such behaviours tractable
- Introduce some of the relevant statistical concepts that let psychologists interpret data
- Introduce some of the relevant calculations and ways of presenting data from experiments

Formal Tutorial Sessions
Each of the 8 main lecture blocks of the course will have one tutorial. Each tutorial will be based around a key reading and discussion question(s) set by the lecturer for that block, except for the Research Methods tutorial, which will be based on a series of practical exercises. The readings for the remaining seven tutorials are outlined below. You will find a guide to reading and analyzing research papers in Appendix 1 of this workbook.

To gain marks for tutorial participation you MUST read the allocated article for the tutorial, and write your summaries of the papers in your hard-copy tutorial workbook. This preparation before the tutorial will equip you to participate in the tutorial discussion. If you do not bring the short, handwritten summaries to the tutorial, you will not be awarded the half-mark for participating in that tutorial. Emailing a summary after the tutorial has taken place will not result in you being awarded this mark; you must bring the answers with you to the tutorial.

The topics, readings, and preparatory questions for the tutorials are listed on the following pages:
Semester 1 tutorials:

1. Differential Psychology


TO BE COMPLETED AS TUTORIAL PREPARATION:

Q1. In your own words describe the main aims, methodology and conclusions of the paper (150 words)
Q2. Discuss what you think the implications of the article are. How could the conclusions be applied in the real world? What further research needs to be done in this area to aid our understanding? (150 words).
DISCUSSION QUESTIONS (to be discussed in the tutorial)
Why do intelligent people live longer?

Are there other ways in which intelligence differences could be important in everyday life?

FURTHER DISCUSSION QUESTIONS (relating to lectures):
To what extent do the five factor model/"big five" provide a comprehensive theory of personality structure?

Compare and contrast the nomothetic and idiographic approaches as they apply to the study of personality.

Is there more to intelligence than 'general intelligence'?

Space for your notes taken during the tutorial:
2. Cognitive Neuroscience


TO BE COMPLETED AS TUTORIAL PREPARATION:

Q1. What was the independent variable in this study?

Q2. What was the dependent variable in this study?

Q3. What was the design of the study?
   (a) They tested one group of people twice
   (b) They tested one group of people once
   (c) They tested two groups of people, twice each
   (d) They tested two groups of people, once each

Q4. In your own words describe the main aims, methodology and conclusions of the paper (150 words)
Q5. Discuss what you think the implications of the article are. How could the conclusions be applied in the real world? What further research needs to be done in this area to aid our understanding? (150 words).
3. Research Methods: Scientific Papers in the Media

This tutorial requires you to read press coverage of a scientific article. From this article, you will be asked to try and answer a series of questions about the research questions, design and results of the study. In the tutorial itself, you will discuss your answers, and consider the academic paper reporting on the study. Here you will be able to compare the differences in how scientific research is communicated in the press and in journals.

READING: Please follow the link below and read the article on education and IQ reported on the BBC Science webpage. After you have read the article, please attempt to answer the questions below.

http://www.bbc.co.uk/news/health-16320306

PLEASE ANSWER THESE QUESTIONS BEFORE THE TUTORIAL

<table>
<thead>
<tr>
<th>Q1. What is the primary research question?</th>
</tr>
</thead>
</table>

Additional Notes (from tutorial):

<table>
<thead>
<tr>
<th>Q2. What are the dependent and independent variables?</th>
</tr>
</thead>
</table>

Additional Notes (from tutorial):
<table>
<thead>
<tr>
<th>Q3. In the article, they use the term “naturalistic experiment” to describe the research design. What do you think this is, and why do you think the study they are describing fits this description?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Additional Notes (from tutorial):</td>
</tr>
<tr>
<td>Q4. Describe the sample used in the study? Is this a representative sample of the population?</td>
</tr>
<tr>
<td>Additional Notes (from tutorial):</td>
</tr>
<tr>
<td>Q5. What is the main finding of the research and what numerical information do they provide?</td>
</tr>
</tbody>
</table>
**Q6.** What are the main conclusions of the study? Do you agree that these conclusions are valid given your interpretation of the results?
4. Social Psychology


**TO BE COMPLETED AS TUTORIAL PREPARATION:**
Please read both articles but only use Reading B to complete the following questions.

Q1. What was the dependent variable in this study?

Q2. What was the independent variable?

Q3. What does it mean when the results section reports $p < .001$? (first paragraph of results section)
Q4. In your own words describe the main aims, methodology and conclusions of the papers (150 words)
Q5. Discuss what you think the implications of the articles are. How could the conclusions be applied in the real world? What further research needs to be done in this area to aid our understanding? (150 words).
DISCUSSION QUESTIONS (to be discussed in the tutorial):

In the lecture, we will discuss Milgram’s dramatic studies of obedience and the disturbing findings that came from them. We will note that further progress in understanding when and why people obeyed was limited for several reasons. One is to do with ethics, another to do with the rather narrow focus on trying to explain the baseline condition (where there was high obedience) rather than variations in obedience across situations. In this tutorial, you will discuss these shortcomings and ways of overcoming them.

1. What ethical issues did Milgram’s study raise? Can we study obedience ‘ethically’? To what extent does Burger’s replication achieve this? Are there other ways of studying obedience? (For example, using virtual reality or alternative tasks like squashing insects?). Do you think that Rochat and Modigliani’s historical analysis is useful?
2. What can we learn about obedience from studying when people disobey? (Discuss with reference to the readings).
3. Who did the people of Le Chambon identify with (the French government or the persecuted refugees)? What does this suggest about the significance of relationships and identification to whether people dis/obey authority?
4. What direction should future work on obedience take?

FURTHER DISCUSSION QUESTIONS (relating to lectures):

Would a study such as Milgram’s be relevant today? Are people more, or less obedient in the early 21st century?

Space for your notes taken during the tutorial:
Psychology Labs

You will be expected to participate in all four Psychology labs each semester (detailed below). This will involve you working alone or in small groups to carry out the tasks that are planned for each lab session. You will be assigned a lab time that fits with your timetable. Be sure to turn up promptly for the start of the lab; the Teaching Coordinator and two or three other helpers will be there to put you into groups and tell you what to do. There will be about 50 of you in each lab session, but you will be working in small groups typically. Sometimes you will need to share tasks out in the group, with different people doing different things, but you will all fill out the written parts of this workbook for the lab.

Bring this Tutorial Workbook with you! And a pen! You will need to fill in answers to questions in order to get a mark for participating in the lab. Before you leave the lab, the Teaching Coordinator will confirm you have been given the mark for participating in that lab.

The labs will help you get to know other Psychology 1 students better, and help you to build group skills that will be essential later in your degree and in your future career. The labs are intended to be completed during the double-session (50 mins + 50 mins) of the lab, but you are free to get together afterwards with other students to finish off (or look again at) any written aspect of the lab.

Labs will take place from 13.10 to 15.00 on Tuesdays, Thursdays and Fridays. You are expected to sign-up to a specific lab slot on Learn.
Semester 1:

1. Differential Psychology Lab

*In which ways does the class differ in personality?*

*Do personality traits affect your real-life behaviours?*

*How intelligent do you think you are?*

**Before the lab**
This activity allows students in Psychology 1 to explore their own personality traits and see how they link to actual behaviours. Secondly, an in-class activity addresses some attitudes to human intelligence.

Some of these activities will happen before the first of Professor Deary’s lectures, and some will happen in his lectures.

**Personality: traits and real life**
Each student in the Psychology 1 class will log onto a secure, confidential website to answer, anonymously, a number of questions about their personality. This URL will be made available during the first lecture of term (Monday 16th September); this is the organizational lecture by Dr. Richard Shillcock.

**You MUST complete this questionnaire before Professor Deary’s first lecture (i.e. before Wednesday 17th September).**

The responses of the class as a whole will be analysed by Professor Deary and presented to the class during the personality lectures. The information fed back to the class will include the number of broad personality dispositions that the class displays. The associations between people’s scores on these personality dispositions and some of their everyday activities will be reported back to the class. Male-female differences will also be presented and discussed.

Students are urged to retain (confidentially) their own scores on each of the personality dispositions and refer these to: (a) their own experiences; (b) the guide sheet that describes the scores achieved and their general dispositional traits associated with those scores; and the textbook chapter on personality. The discussion should surround questions such as:

—how useful is it to have a test score of these traits?
—how important is trait versus situation in acting at any given time?
—what other personality schemes might have proved more or less useful than knowing one’s trait scores?

**How clever are you? And how intelligent are other people?**
With regard to the activity on human intelligence, there will be an in-class data gathering exercise. This will be followed in a subsequent lecture by a presentation of the results. In tutorials, students will be encouraged to reflect on the findings from the exercise. Because the activity involves some surprises, further details of this exercise are given in class.

**The lab itself**
There will be a 2-hour lab session in the basement concourse of Psychology, 7 George Square, in Week 3.

**To facilitate the running of this lab, please answer the following four questions honestly (we are not expecting everyone to answer “yes” to all four questions!), and remember your**
score (0-4, where a “no” answer = 0 points and a “yes” answer = 1 point) when you come to the lab. We want to spread the mathematical expertise around the groups.

Q1. Do you know what a mean (average) is?
Q2. Have you ever used a spreadsheet before?
Q3. Do you know what a correlation is?
Q4. Do you know what variance is?

Differential psychologists measure differences between people.

They often have a preconceived idea of which trait (psychological characteristic) they want to measure. In this case, they attempt to make a measurement scale that ranks people based on this trait.

A scale typically consists of multiple questions. This is because ranking people based on only one question may be too unreliable—there are all sorts of things that may influence the result given to every single question, in addition to the trait that we want to measure. This causes measurement error. But when answers of multiple questions are averaged, measurement error cancels out and the truth shines through.

In small groups, you will be developing a scale for the measurement of a particular trait. Based on the definition, you will write some candidate items and rate yourself using these. Then you will use the data to see which items worked best and which did not work that well. So you will be able to select the best items and end up with a solid psychological measurement scale.

You will work in groups of three or four students to follow a set of instructions presented to you over Learn, on one of the computer screens in the basement.

You will become trait psychologists by composing and running a personality questionnaire. You will see some of the results by the end of the lab. You will see all of the results for all the class after the last of the six versions of this lab has been run.

By the end of the lab, you will understand how psychologists construct personality questionnaires, test them, and validate them, and you will have a conceptual understanding of correlation and factor analysis, and a technical-mechanical understanding of correlation.

During the lab there will be times when you have completed your specific task; find someone and work through the explanations of correlation and factor analysis below.

**What is correlation?**

Correlation is the best friend of differential psychologist. It is often interesting on its own but it also underlies other more complex methodological tools (see discussion of factor analysis below). So it is probably wise to get to grips with correlation.

Correlation coefficient (referred to as ‘r’) is a number that quantifies the strength of the association between two variables. The correlation coefficient ranges between -1.0 and 1.0. The size of r indicates the strength of the association between two variables and the sign of r (- versus +) indicates the direction of the association. If it has a positive sign it means that as one variable increases, so does the other. If it has a negative sign it means that one variable increases as the other decreases. If \( r=0 \) that means there is no association between two variables. A correlation of 1.0 suggests the two variables are perfectly positively correlated. Conversely, a correlation of -1.0 suggests the two variables are perfectly negatively correlated.

An example of positively correlated variables would be height and weight. As people get taller, they generally also get heavier. However, this correlation will not be perfect (\( r=1.0 \)), as people of the same height are also likely to differ in weight.
An example of negatively correlated variables would be the amounts of rain and sunshine in a day: more rain probably goes with less sunshine. Importantly, the values of the correlation coefficient as an indicator of the strength of association are interpreted in the same way, whether positive or negative. The sign of the correlation simply gives us information about the direction of association.

Different variables will have different levels of correlation. Figure 1 contains 9 scatterplots showing different magnitudes of correlation between two variables $X$ and $Y$.

**Figure 1: Scatterplots of correlations of different magnitudes**

Scatterplots are often used to display information about the association between two variables. Each person we have data for is a dot in the scatterplot. We will show this in more detail below. When we look at scatterplots, we are looking for certain shapes to the points. You can see for correlations of 1 and -1, the points lie perfectly on a straight line. For a correlation of 0, the points are randomly scattered across the plotting space. The tightness with which the points cluster gives us a sense of the magnitude of the correlation.

**Example: Scatterplots of height and weight data**

Visualising our data is an important first step in any analysis. Making and looking at a scatterplot is a good first step in investigating an association between two variables. So let’s look briefly at how we construct a scatterplot. In Table 1, we have the height and weight of seven men:
Table 1: Height and weight data

<table>
<thead>
<tr>
<th></th>
<th>Height (m)</th>
<th>Weight (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>John</td>
<td>1.52</td>
<td>54</td>
</tr>
<tr>
<td>Peter</td>
<td>1.60</td>
<td>49</td>
</tr>
<tr>
<td>Robert</td>
<td>1.68</td>
<td>50</td>
</tr>
<tr>
<td>David</td>
<td>1.78</td>
<td>67</td>
</tr>
<tr>
<td>George</td>
<td>1.86</td>
<td>70</td>
</tr>
<tr>
<td>Matthew</td>
<td>1.94</td>
<td>110</td>
</tr>
<tr>
<td>Bradley</td>
<td>2.09</td>
<td>98</td>
</tr>
</tbody>
</table>

Let’s start our scatterplot by plotting a single point for one person – George.

Figure 2:

The grey line is drawn vertically from the point on the x-axis corresponding to George’s height – 1.86m. Similarly, the black line is drawn horizontally from the point on the y-axis corresponding to George’s weight – 70kg. The red square marks the point where the lines intersect. This is the point in the scatterplot for George.

We can now add all points for the 7 people. We have added labels so you can see which point belongs to which person. You could draw the corresponding lines for each point if you wish.
So what can we tell from the scatterplot about the relation between height and weight? Well we certainly cannot tell the exact correlation. But we can see that the points generally move from the bottom left, to the top right and that they are not randomly scattered. When we compare this to figure 1, we can see this suggests a positive correlation which is perhaps moderate to large in magnitude (what we would expect).

Summary
In lecture 6 of the Research Methods section of Psychology 1, we will return to this example and discuss the actual computation of the correlation coefficient. For now, there are a few important conceptual points to remember.

1. A correlation measures the degree of association between two variables.
2. Bigger values (closer to -1.0 or 1.0) indicate stronger associations, with values of 0 indicating no association.
3. When a correlation is positive, it indicates that as one variable increases, so does the other (think height and weight). Conversely, when a correlation is negative, it means as one variable increases, the other decreases (think sun and rain).
4. We can visualise correlations using a scatterplot.

Factor Analysis
In the previous section we discussed the correlation coefficient as a measure of association between two variables. We also noted that the correlation coefficient is the basis of a number of other methods used by differential psychologists. **Factor analysis** is one such method.

Let’s suppose that instead of just two variables, we have measured lots of variables, all of which correlate to some degree. Sometimes we are interested in the patterns of these correlations, that is, we want to know if we can group together things which correlate more highly with one another (values closer to -1 or 1) than they do with other things we have measured. Factor analysis (and related methods) is the statistical procedure used in such situations.

Factor analysis seeks to explain the patterns of correlations seen in data using a smaller number of variables, called factors. Consider Table 1 in which we have the correlations between 6 tests taken by a group of students. Table 1 is what is called a correlation matrix. It shows the correlations between sets of variables. From it, we can see the correlation between any pair of our 6 tests. So
for example, the correlation between Test 1 and Test 5 is 0.10 (look down the first column under Test 1 until you reach the row for Test 5).

Can you see any patterns in the correlations?

**Table 2: Correlation matrix between 6 tests (n=100)**

<table>
<thead>
<tr>
<th></th>
<th>Test 1</th>
<th>Test 2</th>
<th>Test 3</th>
<th>Test 4</th>
<th>Test 5</th>
<th>Test 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test 1</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Test 2</td>
<td>0.80</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Test 3</td>
<td>0.80</td>
<td>0.80</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Test 4</td>
<td>0.10</td>
<td>0.10</td>
<td>0.15</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Test 5</td>
<td>0.10</td>
<td>0.15</td>
<td>0.05</td>
<td>0.80</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Test 6</td>
<td>0.10</td>
<td>0.10</td>
<td>0.10</td>
<td>0.80</td>
<td>0.80</td>
<td>1.00</td>
</tr>
</tbody>
</table>

Table 3 repeats Table 1, but highlights in red and green two groupings of correlations which are much higher than the other correlations. Did you spot these?

**Table 3: Correlation matrix between 6 tests with sets of high correlations highlighted (n=100)**

<table>
<thead>
<tr>
<th></th>
<th>Test 1</th>
<th>Test 2</th>
<th>Test 3</th>
<th>Test 4</th>
<th>Test 5</th>
<th>Test 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test 1</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Test 2</td>
<td>0.80</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Test 3</td>
<td>0.80</td>
<td>0.80</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Test 4</td>
<td>0.10</td>
<td>0.10</td>
<td>0.15</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Test 5</td>
<td>0.10</td>
<td>0.15</td>
<td>0.05</td>
<td>0.80</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Test 6</td>
<td>0.10</td>
<td>0.10</td>
<td>0.10</td>
<td>0.80</td>
<td>0.80</td>
<td>1.00</td>
</tr>
</tbody>
</table>

In our example with 6 tests, it is quite easy to see the patterns (once you get used to looking at correlation matrices), but imagine if Tables 2 and 3 contained 10, 20, 30 or more tests! In such situations we need a statistical tool to help – and that tool is factor analysis.

For now we do not need to consider the technical details of factor analysis; that will come later. The key points we need to understand now are:

1. Factor analysis is a statistical procedure that helps us identify groups of variables that are highly related to one another.
2. It does this by finding patterns in the correlation matrices.
3. Once the groups of variables are identified, we can represent these groups as factors. As such, factor analysis takes lots of variables, and reduces them to a smaller number of factors. This is why it is often referred to as a **data reduction** technique.
A last step once we have identified the factors is to try and understand why these particular sets of variables, tests in our example, group together. This is a subjective exercise based on theory and the experience and knowledge of the researcher.

For example, suppose tests 1-3 are scores from maths, physics and engineering exams and tests 4-6 are scores from English, philosophy and history exams. We may theorise that numerical ability underpins the scores for tests 1-3, whilst writing skills underpin the scores for tests 4-6. We may therefore decide that our factors represent numerical ability and writing skills.

Let’s briefly consider this conclusion in light of what we know about correlation. If tests 1 and 2 correlate highly and positively (they do, 0.80), then we know that as scores on test 1 increase, so do scores on test 2. We can make the same statement about the scores on tests 1 and 3 and tests 2 and 3 as these pairs all correlate at 0.80. Above we hypothesized that one thing our tests have in common is numerical ability and we defined our factor as representing numerical ability. As such, we are saying that we believe that the reason a person who scores well on test 1 also scores well on tests 2 and 3, is because all tests involve numerical ability, and the person has high numerical ability. In this way, we attribute meaning to factors. But note this is subjective, and people may disagree on how to define factors. This is one difficulty with factor analysis as a method.

2. Hypnosis lab

Note that four of the lab groups will begin upstairs in the rather quieter Room S1 in 7 George Square. The other two will be in the basement concourse, like all the other labs. Check the location of your particular lab and go to the right place.

In this lab we will assess the hypnotic susceptibility of the whole lab group (50 students). We will hand out the paper detailing what will happen, once you arrive in the lab.

N.B. Participation in this lab is entirely voluntary. If you do not feel comfortable taking part in a hypnotic susceptibility test, you are welcome to turn up and sit to one side and observe, and then do the statistical part of the lab.

From this lab (plus the lecture and the two readings) you will gain an insight into the experience of hypnotism, and how research on hypnotism is carried out.

More generally, you will appreciate (a) how a particular disposition varies across a population, (b) why it can be important to be able to replicate reported results, (c) a new type of correlation measure.

After the experiment, we will resume the lab session in the basement concourse, where we will use the computers to enter the data into a spreadsheet and test our hypothesis.

We will be using a rank-order correlation coefficient to address the data. Details of this statistic will be supplied on the day on a separate sheet.
3. Methodology lab
In this lab you will be looking at some data that last year’s first-year class generated in the “eye-tracking” experiment you recently took part in, when you attended the first Methodology lab.

In this lab you will learn about the distribution of behaviours within a large group. Not everyone does the same thing within the group. And any one person can behave variably when presented with what seems to be exactly the same circumstances. You will learn one way of displaying distributional data, using a “heat map”.

A heat map is a popular and attractive way of presenting data. Here’s one from research into advertising. It shows exactly where one person looked during the short time they were looking at the advertisement, when in the eye-tracker. The areas of the advertisement were coloured from green through yellow to red according to how long the eyes fixated a particular spot.

We will make a rather cruder-looking heatmap with data you will find on Learn. Perhaps do this exercise in twos or threes. Write down the answers to (1)(a)-(d).

(1) Recall between yourselves what happened in the “experiment” during the first Methodology lecture.

(a) About how many “participants” took part in the experiment?:

(b) What were you asked to do:
(c) What “data” did you produce; what did one of your “data points” look like?

(d) About how many data points did each person produce?

On Learn, locate the data file. It will be called Robdata. It is just a small part of the whole experiment.

(2) Locate the spreadsheet. It will be called Spreadsheet.

(3) Each rectangle on the spreadsheet represents one rectangle within which a letter-digit appeared.

(4) From the data, total up how many participants reported seeing the contents of each particular rectangle.

(5) Enter those numbers into the spreadsheet.

(6) In Microsoft Excel, under the ‘Home’ Ribbon, select ‘conditional formatting’, then ‘colour scales’. This will add colour to your cells. Follow the link below if you need help.


(7) So now you have the heat map. The background picture, is on Learn. It is called ‘Robpic’.

(8) The goal now is to use Microsoft PowerPoint, to superimpose the spreadsheet on the picture, to produce something like the heatmap below:

Did you get something comparable?
Take a look at these data in the picture. Answer (1) -

(1) The “1”s were left out. Why?

(2) Where would you have predicted people would look?

(3) Are the people looking at the top left an “artefact”? (i.e. an uninformative accident caused by something about the experiment that we didn’t intend to happen.)

(4) Our heat map isn’t as finegrain as the earlier illustration. Does it matter? Would it have been right to have used very graded colours for our experiment?

Monte Carlo (or sampling) statistics
Is the distribution of “fixation points” just chance? Is it really telling us something interesting about where people were looking?

We can tell if an “8” is likely or unlikely by using sampling – or Monte Carlo – statistics.

Imagine we had 221 participants in the experiment. (Remember we took out the 1s in the data.) How likely is it that just by chance 8 people would be looking at the same point anywhere on the screen?

We can find out the probabilities involved. Imagine having real boxes occupying the same locations as the rectangles in the picture. Now imagine throwing 221 grains of rice up in the air over the boxes, so that the rice fell randomly over all the boxes. Now count the grains of rice in each box. If a box contains 8 or more, then it suggests that our distribution above might not be so unusual. If we had seen 43 people all staring at the same point, then how likely is that to be something other than chance?

We only looked at just one randomization in our rice test. We could throw the rice up in the air again, count the rice again, and see if we get a concentration of rice grains greater than 8 again.

In fact, we can make a computer do the same thing. The boxes are just “addresses” abstractly defined in the computer program by ourselves. We make the program randomly assign scores to each of the boxes, and the scores randomly add up in the different boxes addresses until a total of 221 is reached. Then the program reports the highest score randomly assigned in this way. Perhaps the highest score is 14 this time.

But how often will we see 8, or 14 or 43?

Well, we can tell the computer program to repeat 10,000 times and we can then look. We might see 314 times when 8 was the top score, 162 times when 14 was top score, and perhaps only 3 times when 43 was the top score. We can turn these into probabilities: 314/10,000 for the top score of 8. This is a probability of .0314. Or just over a 3% chance of 8 being our top score.
4. Social Psychology Lab

Your Social Psychology Laboratory will involve you filling out a questionnaire. This will be emailed to you in the weeks prior to your first Social Psychology Lecture.

The aims of this lab are twofold:

1. to discuss, analyse, interpret and evaluate the online survey of the Facebook Self you completed before the lab.
2. to design and pilot a follow up study of self-presentation on Facebook.

Introduction to the study

Social Networking Sites (SNSs) like Facebook have become increasingly popular, especially among young people. Several researchers have noted that SNSs provide multiple resources for presenting self (e.g. photos, lists, self-descriptions, status updates). On the basis of focus groups with 23 undergraduates, Manago, Graham, Greenfield and Salimkhan (2008) identified several ways of constructing selves online (e.g. through social comparisons with friends and old acquaintances). They found that students used MySpace to explore personal and social identities and for ‘expressing idealised aspects of the selves they wish to become’ (p.446). They also found that visitor comments provide feedback and validation of presented selves.

Zhao, Grasmuck and Martin (2008) used independent judges to examine 63 personal Facebook sites. They found that the self was commonly presented as popular or socially desirable, ‘well-rounded’ (i.e. with a variety of interests and activities), and thoughtful. Strano (2008) used an open-ended qualitative survey in which she simply asked people to write a brief description of why they had chosen their profile photo, and she then categorised the responses into different kinds. Her study suggested a range of reasons for their choice (‘I look attractive’, 17%, ‘it shows me having fun’, 12%, ‘it was a humorous shot’, 11%). She also examined how users thought others would see them on the basis of their image (this was, most commonly, ‘fun-loving’ 33%, ‘friendly’ 13%, and ‘happy’ 11%). However, these percentages are fairly low, perhaps suggesting variability in reasons rather than consensus over a few types of explanation.

Back, Stopfer, Vazire, Gaddis et al (2010) argue that there has been little research on what they regard as the most fundamental question: do SNS profiles convey accurate or idealised impressions of the owner’s self? On the one hand, Manago et al.’s (2008) study suggests that we use media like Facebook to create and portray idealised selves. On the other hand, there is usually a lot of overlap between online and offline relationships and it is likely that this acts as a constraint on identity-construction (we can’t get away with an online profile that differs greatly from our actual – or offline - selves, because our friends are likely to comment about the difference). Therefore, some argue that we use SNSs to express our actual personality (e.g. Vazire & Gosling, 2004).

Back et al.’s research directly compared these two positions. That is, they looked at whether Facebook users display idealised characteristics (‘the idealised virtual-identity hypothesis’) or communicate their real personality (‘the extended real-life hypothesis’). First, their participants completed a personality questionnaire. Second, they answered the personality questionnaire again but this time for ‘yourself as you ideally would like to be’. Third, they asked observers to rate participants’ online profiles on the same personality dimensions (assuming that if SNSs are used to communicate your real personality, this should come across to observers). Their results supported the ‘extended real-life hypothesis’.

Our study builds on this. Instead of using personality ratings, we asked users to rate the impressions they wanted to convey on a set of dimensions (e.g. fun-loving, sociable). These were derived from the qualitative studies done by Strano and Zhao et al. (i.e. their participants mentioned them as important), and we asked people directly about the kinds of impressions they wanted to make on Facebook as well as what they are really like. The aim was to take account of the fact that selves are multidimensional and there are many (equally desirable or accurate) images we may try to project, not just personality.
This study investigated whether people project their real or idealised selves on Facebook.

**Method**

Participants were the Psychology 1 students. There were __ males and __ females, the majority of whom were aged 18-21 years (__), with fewer respondents 22-30 years (__), and 31+ (__). They were asked to complete an online survey about their own or someone else’s Facebook page.

The survey included statements about reasons for choosing the profile image, how participants would like visitors to their Facebook page to see them, what they are like, and some direct statements about what participants are trying to do on Facebook (convey my real self, my ideal self, be honest, or present myself in the best possible light). Participants responded to all statements on a five-point scale (from strongly disagree to strongly agree).

**Analysis**

We will concentrate on the statements concerning the real and ideal self.

You will be provided with the table of results before your lab class (Table 1). The table will give the means and standard deviations for each of the statements about the ideal and real self. The first sets of statements all began with the phrase, ‘Ideally I would like people who visit my Facebook page to see me as …’ (this has been shortened in the table for convenience).

Using the table, and working as a group, discuss and answer the following questions.

**Part 1: Analysing and interpreting the results**

Q1 Find the **biggest** mean differences between real and ideal self (i.e. a difference between the two means of 0.7 or more).

What are they?

Do these questions have something in common with each other? If so what?

Which statements have the **smallest** mean differences between real and ideal self?

Do these have anything in common?

Q2 Which statements have produced the most variable responses, and how can you tell?

Which statements have produced the least variable responses?

*(Your lecture notes for Statistics and Methodology should help here)*

What conclusions can you draw from your answers to questions 1 and 2?

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1 You can fill in the blanks here once the study is complete.
Q3 What other observations can you make about these data (e.g. looking at the means, are some aspects of self more relevant to participants than others?).

Q4 What conclusions can you draw from these data about the presentation of self? In other words, on the basis of these observations, what can we say about the participants' real and ideal selves?

Q5 How do our findings relate to the literature? Do they support previous findings described above (e.g. Back et al.; Manago et al.) or do they differ? If so, how? Why do you think this might be the case?

Q6 Thinking about the self and self-presentation, as discussed in the lecture, what can we learn from this study?

Part 2: Evaluating the study
Q7 This study used quantitative, self-report, likert scale data. What do you think are the advantages and limitations of using this kind of data?

Q8 Remember that the research question for this study was, do people project their real or idealised selves on Facebook? To what extent did the method used (an online survey), and the kind of data collected satisfy this aim?

Q9 How could this study be improved for next year's Psychology 1 class? Why would this be an improvement

Part 3: Designing your own Facebook Self study
In the final part of this lab, you and your group should design and describe your own study of ideal versus real self-presentation on Facebook. You may decide to build on and improve the class study above, for example, by collecting ‘better’ or more appropriate data to answer the same research question. You may decide to use a different method to collect qualitative or quantitative data or both (e.g. interviews or independent judges). You may want to address the same research question or modify the question. This is your chance to be a little creative!
Take some time to discuss your study before writing answers to the following questions.

1. What is your research question or hypothesis? What do you want to know?

2. How are you going to answer this question? What methods will you use to study self-presentation?

3. What data will you collect and how?

4. What are your variables?

5. Justify and explain your design. (Why is this the best kind of data and way to answer your research question?)

If possible, pilot your study on each other or your own Facebook sites (make sure, first, that the owner is happy to let others look at or use their site or to participate). This may involve asking each other questions, or trying out your new rating scales, or judging your own or others’ Facebook pages. (Note that if you can’t answer the questions, then it’s likely your participants won’t be able to either!)

6. Describe here what you did to test your study.

7. What worked well? Did some aspects not work out so well? Why do you think this was? What, if anything, do you need to change?

8. What have you learned about carrying out research from this lab?
Study Skills Activities

In addition to each tutorial you will be set short study skills tasks over each semester (see timetable). Some of these will need to be submitted in a specific tutorial for your tutor to check; others are for you to complete in your own time (see timetable and LEARN for specific details). Some of these activities will involve you carrying out a specific skill to help you prepare for the tutorial or assessment, and others are general skills with which you should be familiar. It is strongly recommended you complete the tasks below for success in your future studies. Please see LEARN for how-to guides for each task.

The tasks are as follows:

1) Note taking
Note taking is an extremely important part of your academic life. You need to do it in lectures, tutorials, studying for exams and writing essays. There are many ways of taking notes and it is up to you to find a style that suits you and which you understand. This activity is designed to familiarise you with the different note taking styles and to help you develop a style that suits you.

2) Finding a journal article
Set readings for the tutorials are not given to you, you are required to search for and access these articles yourself. It is important you become familiar with the library catalogue, online databases and where to find information on the internet as quickly as possible when you begin university. You should bring the set reading(s) for each tutorial along with you.

3) Literature searching
You should also become proficient at searching for relevant literature on a given topic as quickly as possible at university. This is a key skill required for researching your coursework. For this activity you should use the guides to search for reading for your chosen essay topic. You will need to find at least five references, which you should bring to the Memory tutorial along with your choice of essay title. Note that this activity also requires you to have chosen from one of the four essay titles to answer.

4) Essay referencing
Writing essays is a main method of assessment in this course and many other courses at university; you can gain (or lose) easy marks though the way you reference sources. This activity is designed to give you formative feedback on your referencing format. For this activity you will be required to complete some referencing exercises, and provide an APA-style reference list, using the references you plan to use for your essay. You are also required to write an opening paragraph to your essay. This activity will be submitted to Turnitin (to ensure that you understand the submission process), and will receive feedback from your tutor.

5) Critical analysis
Critical analysis is a key skill that will be developed throughout your university career. You may find that feedback on your work says “more critical analysis required” or “more evaluation of sources”. This activity is designed to help you understand what is meant by critical analysis and help you to begin to develop these skills in your writing and thinking.

6) Self-evaluation
To make the most out of your time at university, it’s important that you reflect on what you’ve done so far – congratulate yourself on the progress you’ve made, and acknowledge areas that still need some work. By now you will have your essay marks back from the first semester. This activity is designed to help you think about how you are doing and to create an action plan for the coming semester. This activity will be submitted to your tutor during the Social Psychology tutorial.
7) Endnote
Endnote is reference management software, which can help you keep track of references and bibliographies when writing essays and reports. It is not essential that you use this software (there are others available), but many students find it a useful resource and this activity is designed as an introduction to the software.

8) Writing an Abstract
By now you will be familiar with the concept of an abstract in psychology research articles. An abstract should be a short concise summary of a piece of research designed to give the reader an overview of what to expect in the article and help them decide whether it is relevant to what they are looking for. This activity will help you begin to develop skills in abstract writing. You are required to write an abstract for a published piece of work (available on LEARN) and to bring this abstract to your Developmental Psychology tutorial, where you will be able to compare with the original abstract.

Guidelines for Psychology 1 Essays
Please note: The essay titles for semesters 1 and 2 are given in the Course Handbook, and on LEARN.

An essay is a formal attempt to answer the question given. So much is obvious, but the question remains "how"?

Structure
Essay writing is essentially story-telling. A story normally has a beginning introducing the characters, a middle which develops their relationships and a conclusion tying all ends together. Thus with an essay, the introduction sets the ground, with descriptions of the basic area(s) to be covered and usually an outline of what the competing bodies of evidence will be. In the middle section or sections, these themes are developed, with details of experiments and, more importantly, the logic which determines how the experiment fits into the story. Although, as in a novel, new "characters" or twists in the logic of the story may be introduced, remember that these must also fit into the tale. There is little more irritating in both novel and psychology essay than characters (or experiments) brought in with no explanation or clear reason.

The ending is more difficult and critical. Tying loose ends together is a common problem, often solved in an essay by saying that the conclusion is a bit of this and a bit of that; i.e., every explanation is both right and wrong. While this may well be so, it is a very weak ending. Try to demonstrate what bits are right and wrong, and how the components fit together to produce the final story.

For example, take an essay which centres around biological vs. social constraints on human behaviour. In some very real sense, both approaches or sides are correct. However, in many of the examples given it can be seen that while biological constraints may define the outline of the tale (or the ultimate cause), we can see that particular social or psychological structures have arisen which act as the immediate reason (or proximal cause). There are strong biological reasons for us not to marry close relatives, especially when population densities are low (increase in disease through recessive gene combinations, loss of 'hybrid vigour', etc.). What would a 'genetic constraint' on marrying close relatives be, though? One problem is to first recognise your close kin. Fox found that children reared closely together in Israeli kibbutzim did not intermarry even though they were not closely related. They had lived closely together as if they were one family, and the explanation that Fox put forward was that they thus recognised each other as close kin. Thus the biological need, to prevent in-breeding, is served by the social one of recognition of family members. The latter occurs when people live closely together, so the anthropologists are to some extent right when they say that kinship is a social, not biological, phenomenon. In order to make sense of the story, both explanations are needed, and we can describe the part played by each.

One area in which the essay and novel differ is in personal experience. It is very rare for the experience you have, either directly or second-hand, to be useful in answering scientific questions.
This is especially dangerous in psychology, when every man or woman in the street (and the dog) has an opinion about the reasons others behave in the way they do. This is not to say that experience is useless, or that naïve observations are worthless. What it should do is lead us to ask the appropriate questions. For example, violent videos were found in the homes of the two boys who killed Jamie Bulger. A Tabloid reaction was "Ban these killer videos", but we don't even know if the boys watched them. Do other children in the area have such videos in the house? What was different about the home background or personality of the boys? Have other children gone close to committing similar atrocities? These are all relevant questions which we need to ask, and should be raised by that observation.

Length
The expected length of an essay is 1200 words, plus or minus 10%. Adherence to the stated word limits for coursework is one factor among a number of factors that are taken into account by examiners in deciding the overall mark. While we do not apply an explicit algorithm to deduce marks for exceeding the word limit you should assume there will be consequences for excessive length. Markers use their academic judgment in deciding on the overall mark. Word limits do not include title or reference list.

Scope
A common question asked is, "How much detail (experimental or otherwise) is needed?" The answer is, of course, it depends. Often an essay can be answered either by a surface skimming of lots of different material, or by an in depth analysis of a small area. Clearly the detail required in the second is much larger than the first. In the first case the answer will centre on the logic of the results obtained, described very broadly. Of course, there may be instances where it is the detail of the experiment which must be used to show the crucial flaws in an argument. Here the detail needs to be given.

Sources
The common sources for an essay are: a) lectures and handouts; b) the course text; c) other books or articles that lecturers may refer to in handouts or in lectures and d) other sources that you may find for yourself (e.g. by searching the University Library catalogue using keywords or by following up some of the relevant references from the course textbook). Please note that you should use lectures and handouts (and ideally, introductory textbooks) as a method of tracking down relevant material, rather than citing them directly. You should not reference lecture notes or handouts in an essay. You can find sources mentioned in lectures and handouts by using search engines such as google scholar, and web of knowledge (instructions on how to use these will be available on LEARN). Wikipedia is not an acceptable academic source.

References
Whenever you refer to previous work in the text, you must credit the source of the information, e.g. "Eysenck (1965) has suggested..." or "It has been suggested that extraverts are less cortically aroused than introverts (Eysenck, 1965)".

If you quote directly from a source, then the quotation must be in inverted commas and you must give the relevant page number, e.g. (Eysenck, 1965, p.25).

Then, on a separate sheet headed “References” at the end your essay, you should list (in alphabetical order by author’s surname) all of the sources you have referred to in the text using the following formats:
**Journal Articles:**
NB: even if you read the article online, you should provide the formal reference rather than the webpage.

**Chapter in Book:**

**Book:**
The above examples are given to illustrate different reference formats depending on the publication source. However, the Reference section of your report should not be sub-titled. Don't forget, only references you have mentioned in your report should be included.

**Primary and secondary sources:**
The primary source is the publication in which an empirical study was originally reported or a particular theory was first advanced. A secondary source is a publication that gives a second-hand (and usually selective) account of work that has previously been published elsewhere. For example, if you read a summary in Martin, Carlson & Buskist’s textbook of the findings from a study that Bloggins carried out and published in a journal article, then the Bloggins article would be the primary source and the Martin, Carlson & Buskist textbook would be your secondary source. In your essay, you should reference both sources in the text using the following format: e.g. "Bloggins (1972) cited in Martin, Carlson & Buskist (2007)". For the purposes of Psychology 1 essays, you need only provide the details of the secondary source in the reference list at the end of your essay. Of course, if you have actually managed to get hold of and read the primary source, then you should refer just to that (in both the text and the reference list). The reason why it is important to refer to primary sources is that it shows you are drawing on scientific studies which have been published in the scientific literature, rather than relying on anecdote or personal experience. Remember that a crucial feature of an essay in psychology is that it must consist of a piece of coherently argued scientific writing. It is not a piece of journalism, so do not adopt a journalistic style. Instead, refer to scientific evidence and make this explicit by citing appropriate sources.

**FINALLY, WHEN YOU SUBMIT YOUR ESSAY, THIS IS WILL BE ANONYMUSLY MARKED SO YOU SHOULD PROVIDE:**
1. EXAM NUMBER ONLY (e.g. B012345)
2. ESSAY TITLE
Maths and statistics in Psychology
Statistics is a fact of life when studying Psychology. They show up in all topic areas, and our curriculum requires that students learn to make use of them (whether or not you intend to take Psychology as your honours subject). Some students are more prepared for this than others. We don’t require much knowledge of statistics at the beginning of your degree, but we do expect familiarity with basic maths. You can get some idea if you are ready for us by doing this short set of problems. Don’t use a calculator, mobile phone, or any other external tool except paper and pen(cil), and don’t ask your friends for help.

The answers are on the next page. If it took you more than about 15 minutes to do the set of problems and/or you missed more than five of them, you might want to consider getting yourself some maths practice in Year 1 before the statistics courses begin in Y2. One way to do this is to register for Statistical Literacy (SCIL 07001), which is offered by the School of Social and Political Science. The skills this new course imparts are not only fundamental to logical and critical reflection, but also highly valued by employers as economy and society becomes more ‘data driven’. The course is open to students in any Edinburgh undergraduate programme. It is not required but can be taken for 20 credits or on a non-credit basis alongside the regular 120-credit programme. (Your Personal Tutor can advise on all this.) You can find the full course description at:

http://www.drps.ed.ac.uk/12-13/dpt/cxscil07001.htm

The recommended book for this course is “The Tiger That Isn’t: Seeing Through a World of Numbers”, by Dilnot and Blastland (2008). Therefore, you may consider reading this book even if you do not enroll on the course. Once you arrive in Edinburgh and register for your degree, you can read an electronic version of the book for free by typing the authors’ names into the Edinburgh University Library search at:

http://www.ed.ac.uk/schools-departments/information-services/services/library-museum-gallery/finding-resources/library-catalogues/search-library-catalogue

To access this electronic copy, you will need your “EASE” password first, which allows you to access your own personal University of Edinburgh web environment. In Year 1 of Psychology, and beyond, we will provide you with the maths and statistics support you need; but you have to know what you need first …

If you struggle with the set of problems below, taking Statistical Literacy in your first year may help prepare you for important numerical aspects of Psychology and save you many headaches and late revising nights later on in your degree.

THE PROBLEM SET
1. You want to write a code word with the letters B, G, and T. Each of the three letters can only be used once. How many different code words can you write?

2. If someone can walk on average 1 km per 12 minutes all day, how far can the person go in two hours?
3. If \( y/x \) is .20, then what is \( x/y \)?

4. Calculate \( (7 - 0.70 \times 5) \).

5. A book is on sale at a price of £24, after applying the sale discount of 40%. What was the full price of the book before the sale started?

6. Calculate \( 7 \times 0.3 \).

7. If \( (x-y) = 0.8 \), what is \( (y-x) \)?

8. True or false: \( (a-b) - (c+d) = (a+c) - (b+d) \)

9. Calculate \( (3/7) \times (-2) - (1/7) \).

10. In a group of 600 people, there are 410 men and 190 women. Among the men, 30% are overweight. How many men is this?

11. Calculate \( (-2) - (-7) \).

12. Which of the following is less than 1?
   a. \( 1/2 + 6/11 \)
   b. \( 5/6 + 1/3 \)
   c. \( 3/7 + 1/3 \)
   d. \( 3/4 + 3/12 \)
   e. None of these

13. What is the square root of 0.01?

14. True or false: \( 0.037 > 0.06 \)
15. \( F(x) = 35 - .07x \) is a function describing the amount of petrol in my car as a function of the distance in miles I've driven since I filled it last time at the petrol station. How many miles can I drive on a tank?

16. Solve this equation for \( x \): \( 3x^2 + 7 = 4x^2 - 9 \).

17. Express \( \frac{5}{40} \) as a percentage.

18. A car uses 8 litres of petrol to go 100 miles. How many litres does it need to go 250 miles?

19. Calculate \((4/5)*(5/4)\).

20. 36 is 60% of which of the following?
   a. 0.60
   b. 27
   c. 60
   d. 54
   e. None of these
Appendices

Appendix 1: Preparation for tutorials

THE PSYCHOLOGY JOURNAL ARTICLE

Journal articles in psychology have a standard format which simplifies the task of readers, editors, and referees in picking out the essential information quickly. Some journals depart from this format, for instance placing the Methods section at the very end of the article rather than after the Introduction, or requiring that the article is written as a whole, using connected text, as you would find in a newspaper. The standard format, however, is very widely used, and next year it will be adopted in writing up your practical work.

The standard format has the following components, in this order
• Title
• Abstract
• Introduction
• Methods
• Results
• Discussion
• (Conclusion)
• References
• (Appendix)

N.B. not all of the articles above follow this format, some may be review article or essay type articles. However, this outlines the structure of a typical research article in psychology. You can use the form below as a guide to help prepare for your tutorials.

Template for analysing research papers

2) What is the area that is being addressed?
3) What are the main points or arguments the author(s) make in the article?
4) How does the author(s) set up the area as an important area of study?
5) What is the main methodology of the study?
6) What was the sample size?
7) What were the main findings of the article?
8) How do these relate to the main argument of the article?
9) Can the results be interpreted in any other ways?
10) What are the key inferences and conclusions the author(s) make?
11) How can the result of the study be applied in real world situations?
12) What are your opinions on the article?

When you are revising your notes (or, if you are short on time on a first reading), then make sure you can at least answer the following four questions about the article:

What did they do?
What did they do it?
What did they find?
What does it mean?
Appendix 2: Answers to Maths Quiz

Answers to Maths quiz (Page 28-30):
1. 6
2. 10 km
3. 5
4. 3.5
5. £40
6. 2.1
7. -0.8
8. False
9. -1
10. 123
11. 5
12. c.
13. 0.1
14. False
15. 500 miles (big tank or petrol-efficient car)
16. x=4 or -4
17. 12.5%
18. 20
19. 1
20. c.