Guertin and Bailey (1970) reported the following two-factor model to account for the correlations among several subscales of the Wechsler Adult Intelligence Scale (WAIS):

| | Factor Loadings | |
Subtest	1	2
1. Information	.63	-.34
2. Digit Span	.42	-.13
3. Vocabulary	.66	-.41
4. Block Design	.62	.40
5. Picture Arrangement	.47	.11
6. Object Assembly	.59	.40

- Use the factor loadings to plot each subtest as a point in the two-dimensional factor space. Use Factor 1 for the x-axis and Factor 2 for the y-axis.

- Based on the factor loadings, what is the estimated correlation between scores on the Digit Span and Information subtests?

- Based on the factor loadings, what is the estimated correlation between scores on the Vocabulary and Picture Arrangement subtests?

- Compute the common variance and unique variance for each subtest.

For this exercise, you'll do a factor analysis on $N = 615$ responses from the *Abbreviated Math Anxiety Scale*. You'll need to download the `AMAS.csv` file from Canvas and open it in JASP. Participants are asked to rate their perceived anxiety when thinking about the following situations (1=low anxiety, 5 = high anxiety):

1. Having to use the tables in the back of a mathematics book.

2. Thinking about an upcoming mathematics test one day before.

3. Watching a teacher work an algebraic equation on the blackboard.

4. Taking an examination in a mathematics course.

5. Being given a homework assignment of many difficult problems which is due the next class meeting.

6. Listening to a lecture in mathematics class.

7. Listening to another student explain a mathematics formula.

8. Being given a "pop" quiz in a mathematics class.

9. Starting a new chapter in a mathematics book.

- Compute a correlation matrix for the 9 items and report the correlations between the following two pairs of items: Items 1 and 2, and Items 3 and 6.

- Perform an exploratory factor analysis using the initial JASP defaults (Number of factors = parallel analysis, Rotation = Oblique/promax, highlighted loadings > 0.3). How many factors do you end up with? Which items load on which factors?

- Compute the common variance and unique variance for Items 3 and 8. Explain what these numbers mean.

- Compute the model estimated correlations between Items 1 and 2 and Items 3 and 6. How do these estimated correlations compare with the actual correlations you obtained in (a) above?

- What is the correlation between the two factors?

- Based on the pattern of loadings in (b), can you interpret the factors of the scale?

- What happens to the model fit when you manually choose one less factor? Is this "reduced" model acceptable? Cite the appropriate statistic(s) to justify your answer.