



The external assessment requirements of this subject are listed on page 23.

General Mathematics

2017 Sample paper

Question Booklet

- Questions 1 to 9
- Answer **all** questions
- Write your answers in this question booklet
- You may write on page 15 if you need more space

Examination information

Materials

- one question booklet
- one SACE registration number label

Reading time

- 10 minutes
- You may make notes on scribbling paper

Writing time

- 2 hours
- Show all working in this question booklet
- Use black or blue pen
- You may use a sharp dark pencil for diagrams
- Approved calculators may be used — complete the box below

Total marks 90

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Attach your SACE registration number label here

Graphics calculator

1. Brand _____
 Model _____
 2. Brand _____
 Model _____

For office use only

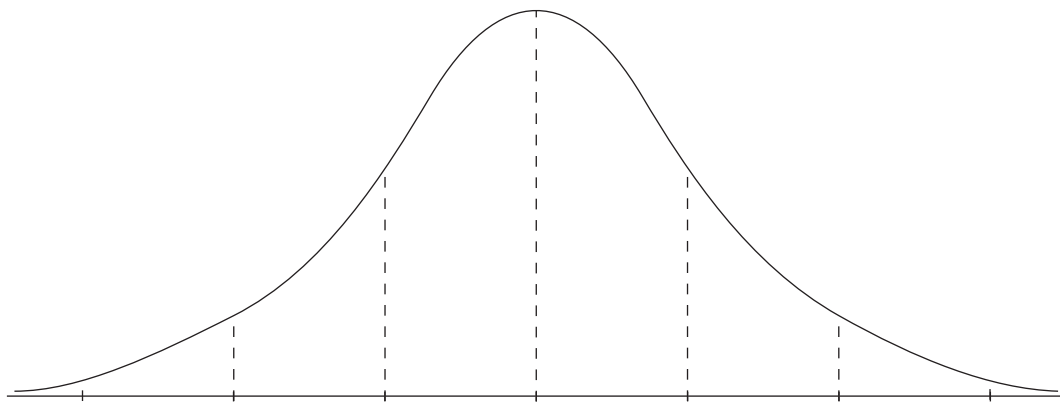
Supervisor check	Re-marked

Question 2

The Marshmallow Company weighed 1800 individual marshmallows. The weights of these marshmallows are normally distributed, with a mean weight of 13 grams and a standard deviation of 0.75 grams.

- (a) Complete the scale on the normal distribution graph below. You are not required to show the standard proportions (percentages) on the graph.

Marshmallow weights



Weight (grams)

(1 mark)

- (b) Calculate the percentage of marshmallows that you would expect to weigh more than 14.5 grams.

(1 mark)

(c) (i) Calculate the difference between the amount of interest paid over the first 5 years of Julianne's loan and the amount of interest paid over the last 5 years of her loan.



(4 marks)

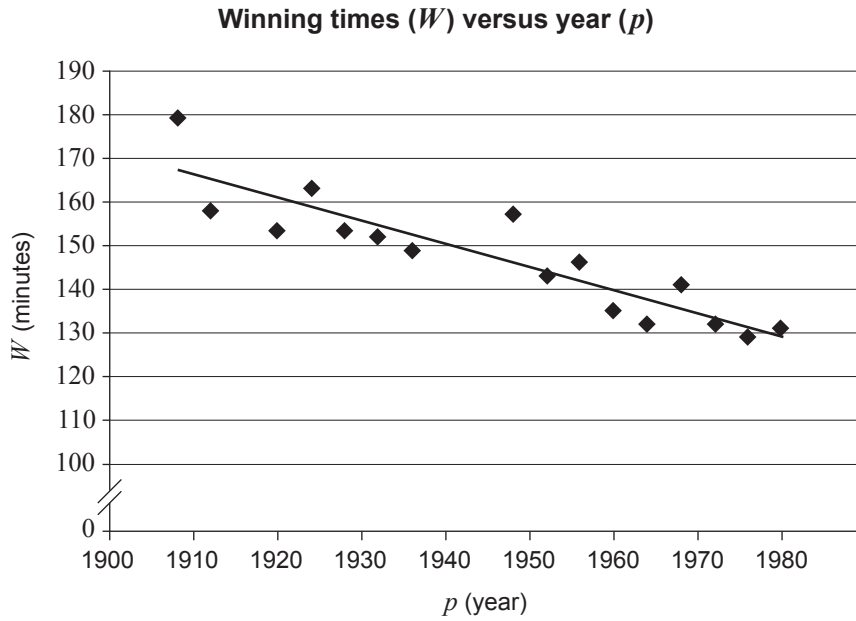
(ii) Explain why there is a difference between the amount of interest paid over the first 5 years of Julianne's loan and the amount of interest paid over the last 5 years of her loan.



(2 marks)

Question 6

The scatter plot below shows the winning times (in minutes) for the annual men's marathon between the years 1908 and 1980. The linear model for the least squares regression line (line of best fit) shown on the graph is $W = 1173 - 0.527p$.



(a) State the dependent variable for the scatter plot above.

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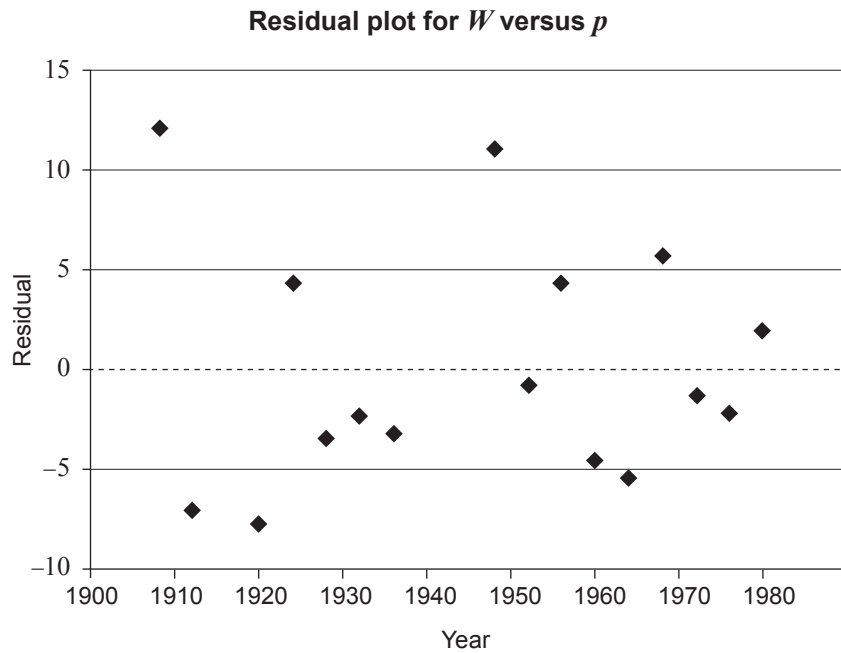
(1 mark)

(b) Interpret the meaning of '- 0.527' in $W = 1173 - 0.527p$ in the context of the winning times for the men's marathon.

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(2 marks)

A residual plot for the linear model $W=1173 - 0.527p$ is shown below.



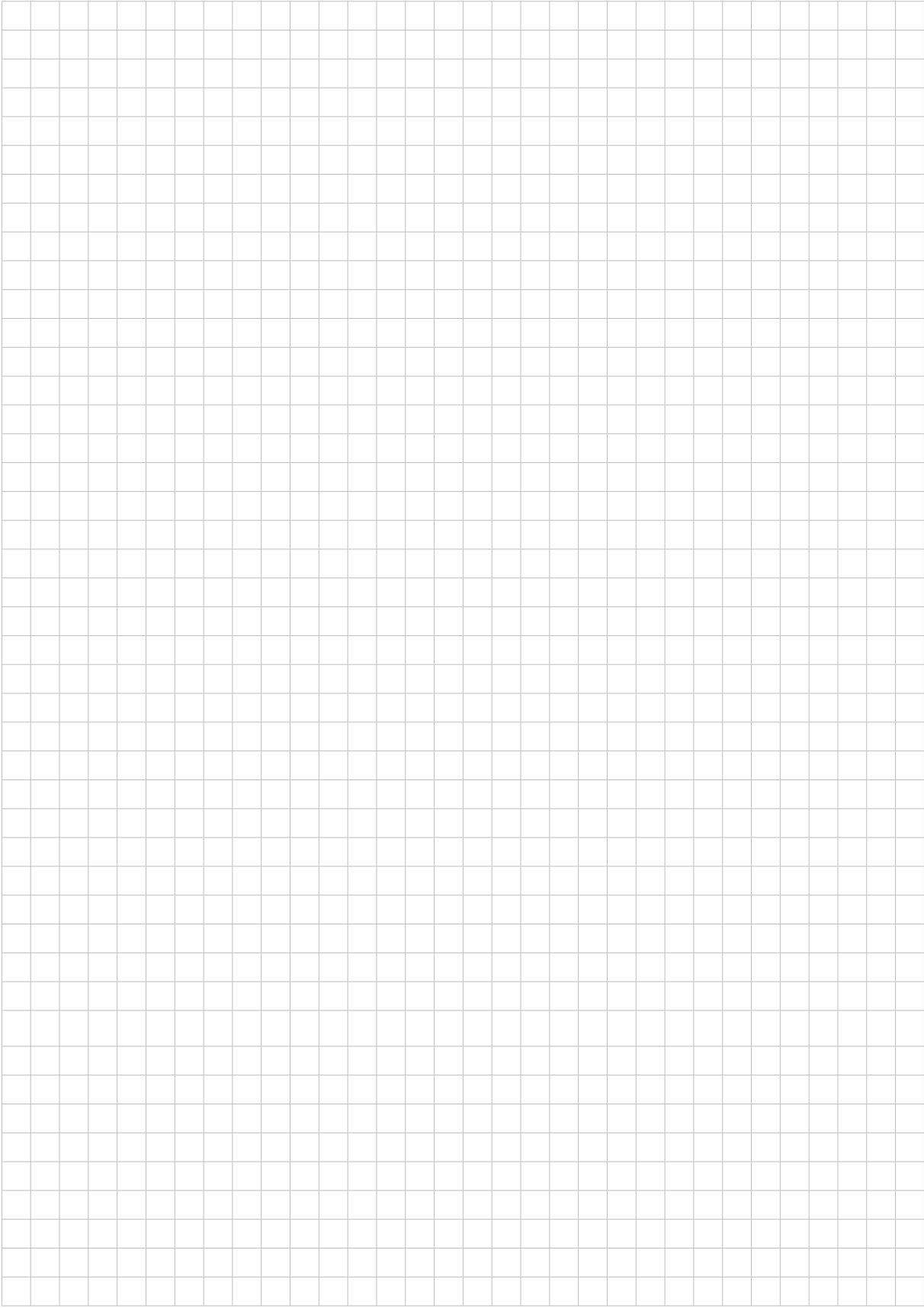
(e) (i) Circle the *two* points on the residual plot above that represent the years in which the winning times for the men's marathon were much longer than the model predicts. (1 mark)

(ii) If the two data points for these longer winning times were removed from the scatter plot on page 12, it would result in a new linear model.

Tick the appropriate box to indicate which *one* of the following values is most likely to be the slope of the new line of best fit.

-0.455 -0.527 -0.632 (1 mark)

You may write on this page if you need more space to finish your answers to any question. Make sure to label each answer carefully (e.g. 'Question 5(b) continued').



This sample General Mathematics paper shows the format of the examination for 2017.

- (f) At age 30 (after working for 5 years) the interest rate on Minh's superannuation account changes to 7.3% per annum, compounded quarterly.

Minh begins to make a voluntary contribution — in addition to the employer's contribution — to his superannuation account of \$300 each quarter until he retires.

How much money will now be available for Minh in his superannuation account when he retires at age 65?



(3 marks)

2017 SAMPLE GENERAL MATHEMATICS PAPER

The purpose of this sample paper is to show the structure of the General Mathematics examination and the style of questions that may be used. The following extract is from the 2017 subject outline for General Mathematics:

EXTERNAL ASSESSMENT

Assessment Type 3: Examination (30%)

Students undertake a 2-hour external examination in which they answer questions on the following three topics:

- Topic 3: Statistical Models
- Topic 4: Financial Models
- Topic 5: Discrete Models.

The examination is based on the key questions and key concepts in Topics 3, 4, and 5. The considerations for developing teaching and learning strategies are provided as a guide only, although applications described under this heading may provide contexts for examination questions.

The examination consists of a range of problems, some focusing on knowledge, routine skills, and applications, and others focusing on analysis and interpretation. Students provide explanations and arguments, and use correct mathematical notation, terminology, and representations throughout the examination.

Students may take one unfolded A4 sheet (two sides) of handwritten notes into the examination room.

Students may have access to approved electronic technology during the external examination. However, students need to be discerning in their use of electronic technology to find solutions to questions/problems in examinations.

All specific features of the assessment design criteria for this subject may be assessed in the external examination.

Source: General Mathematics 2017 Subject Outline Stage 2, pp 32–3, on the SACE website, www.sace.sa.edu.au

