



## Investigation 2.

In this investigation, you will implement the statistical investigation process to answer the question: is there an association between height and foot length.

### Step 1: Identify the problem and pose a statistical question

Is there an association between height and foot length?

### Step 2: Collect or obtain data

Survey at least 15 people around you (classmates, friends, family, strangers on the internet). Record your results in the table below:

Person	Height	Foot length

Person	Height	Foot length



## Investigation 2 (continued).

### Step 3: Organise and analyse the data

Organise your data into the two-way frequency table below.

	<20cm	20-25cm	25-30cm	30-35cm	35+cm	<b>TOTALS</b>
<b>&gt;150cm</b>						
150-160cm						
160-170cm						
170-180cm						
180+cm						
<b>TOTALS</b>						

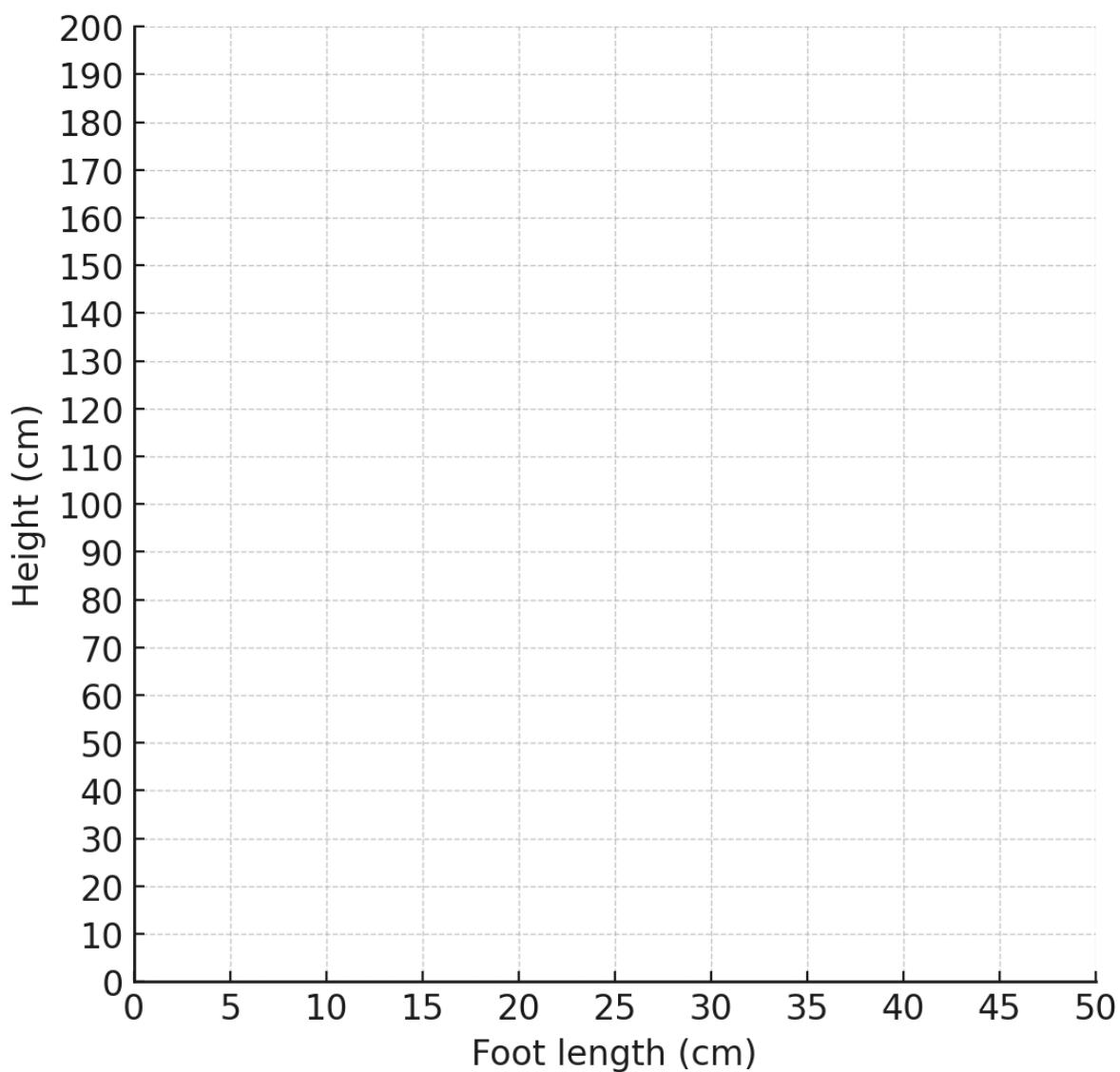
Convert your table from step 3 into overall percentages.

	<20cm	20-25cm	25-30cm	30-35cm	35+cm	<b>TOTALS</b>
<b>&gt;150cm</b>						
150-160cm						
160-170cm						
170-180cm						
180+cm						
<b>TOTALS</b>						



## Investigation 2 (continued).

Plot your original raw data (from step 1) on the scatterplot below.



Use your CAS calculator to find the correlation coefficient ( $r$ ) using the raw data.

*Write the steps you used on the calculator and your result here.*



## Investigation 2 (continued).

### Step 4: Interpret the results

Use the evidence from your two-way table, percentages, scatterplot, and correlation coefficient to comment on your findings.

*You might like to consider the following when writing your interpretation.*

- *The scatterplot shows a \_\_\_\_\_ (positive / negative / no) association.*
- *The strength of the association looks \_\_\_\_\_ (strong / moderate / weak).*
- *The form of the relationship is \_\_\_\_\_ (linear / non-linear).*
- *The two-way table shows that most people with \_\_\_\_\_ foot lengths also had heights in the range \_\_\_\_\_.*
- *The correlation coefficient was  $r =$  \_\_\_\_\_, which suggests a \_\_\_\_\_ (strength) \_\_\_\_\_ (direction) association.*
- *In context, this means that as foot length \_\_\_\_\_, height tends to \_\_\_\_\_.*



## Investigation 2 (continued).

### Step 5: Communicate the findings

Write a short conclusion that would sum up your question and findings for someone who doesn't want to read the whole investigation.

*In your conclusion you might like to include:*

- *A summary of the results*
- *Whether there is evidence of an association.*
- *Whether you think this is a causal relationship, or if another explanation is more likely.*