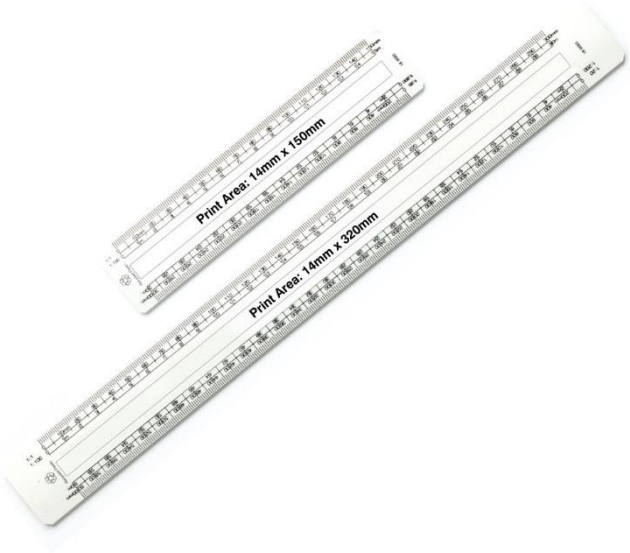
WelTec/Whitireia Mathematics Series

Scale Rules

A scale ruler is one that has markings that are graduated either in metric or imperial units. In New Zealand, the majority of scale rulers are metric. There are two sorts of scale ruler, a flat one and a triangular one. The flat scale rule has 4 scales, and the triangular scale rule has 12 scales on it

This hand-out is to get you using your scale rule, and interpreting the lengths you are measuring.



The scales on a scale ruler are given at the beginning of each scale. Normally, there are two scales for each set of markings depending on the ruler. For example, the triangular ruler in the left hand picture has 1:1 and 1:10 as the top scale.

On the 1:1 scale, 10 millimetres in life is recorded as 10 millimetres on the scale. The second scale 1:10 would give 1 millimetre on the ruler as 10 millimetres in life. So, the 10mm mark represents 100 millimetres in life.

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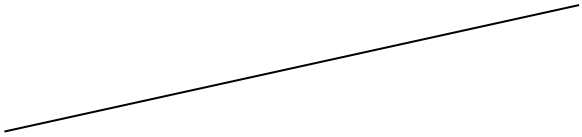
Example 1

The following lines have been drawn at a scale of 1:200. What are their lengths:

a) On the page b) In real life

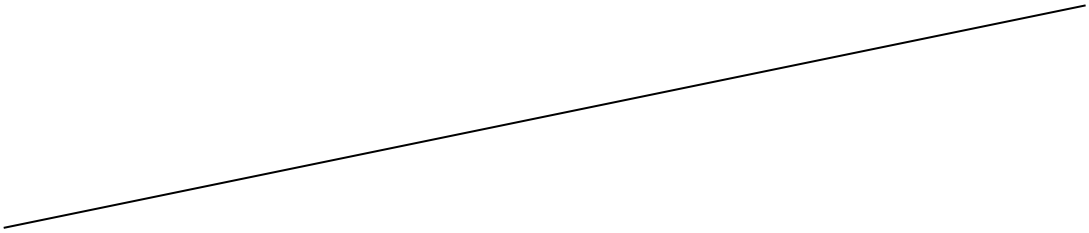
i)

ii)



iii)

iv)



Solution

i) a) **118mm** using 1:1 scale b) **23.6 m** using 1:200 scale

ii) a) **78mm** using 1:1 scale b) **15.6 m** using 1:200 scale

iii) a) **52mm** using 1:1 scale b) **10.4 m** using 1:200 scale

iv) a) **146mm** using 1:1 scale b) **29.2 m** using 1:200 scale

Question 1

Measure line i) in the above example, but this time use the following scale rules:

1 a) 1: 50 b) 1: 500
2 a) 1: 30 b) 1: 300
3 a) 1: 25 b) 1: 250
4 a) 1: 40 b) 1: 400
5 a) 1: 20 b) 1: 200

Answers

1) a) 5.9m b) 59m
2) a) 3.52m b) 35.2m
3) a) 296cm b) 29.6m
4) a) 4.75m b) 47.5m
5) a) 236cm b) 23.6m

Question 2

Measure line ii) in the above example, but this time use the following scale rules:

1 a) 1: 50 b) 1: 500
2 a) 1: 30 b) 1: 300
3 a) 1: 25 b) 1: 250
4 a) 1: 40 b) 1: 400
5 a) 1: 20 b) 1: 200

Answers

1) a) 3.9m b) 39m
2) a) 2.32m b) 23.2m
3) a) 192cm b) 19.2m
4) a) 3.1m b) 31m
5) a) 156cm b) 15.6m

Question 3

Measure line iii) in the above example, but this time use the following scale rules:

1 a) 1: 50 b) 1: 500
2 a) 1: 30 b) 1: 300
3 a) 1: 25 b) 1: 250
4 a) 1: 40 b) 1: 400
5 a) 1: 20 b) 1: 200

Answers

1) a) 2.6m b) 26m
2) a) 1.58m b) 15.8m
3) a) 130cm b) 13m
4) a) 2.06m b) 20.6 m
5) a) 104cm b) 10.4m

Question 4

Measure line iv) in the above example, but this time use the following scale rules:

1 a) 1: 50 b) 1: 500
2 a) 1: 30 b) 1: 300
3 a) 1: 25 b) 1: 250
4 a) 1: 40 b) 1: 400
5 a) 1: 20 b) 1: 200

Answers

1a) 7.3m b) 73m
2a) 4.38m b) 43.8m
3a) 366cm b) 36.6m
4a) 5.85m b) 58.5 m
5a) 292cm b) 29.2m

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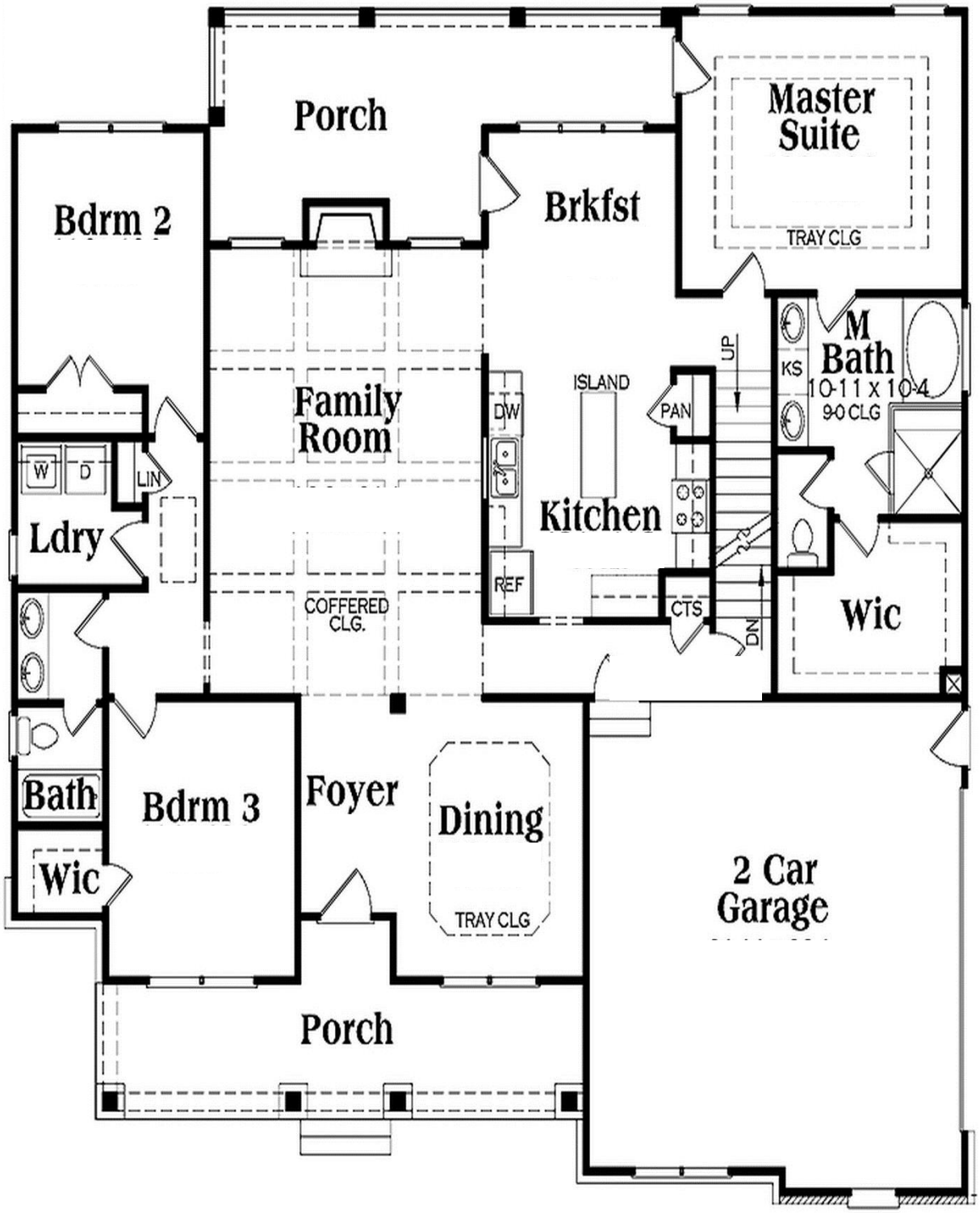
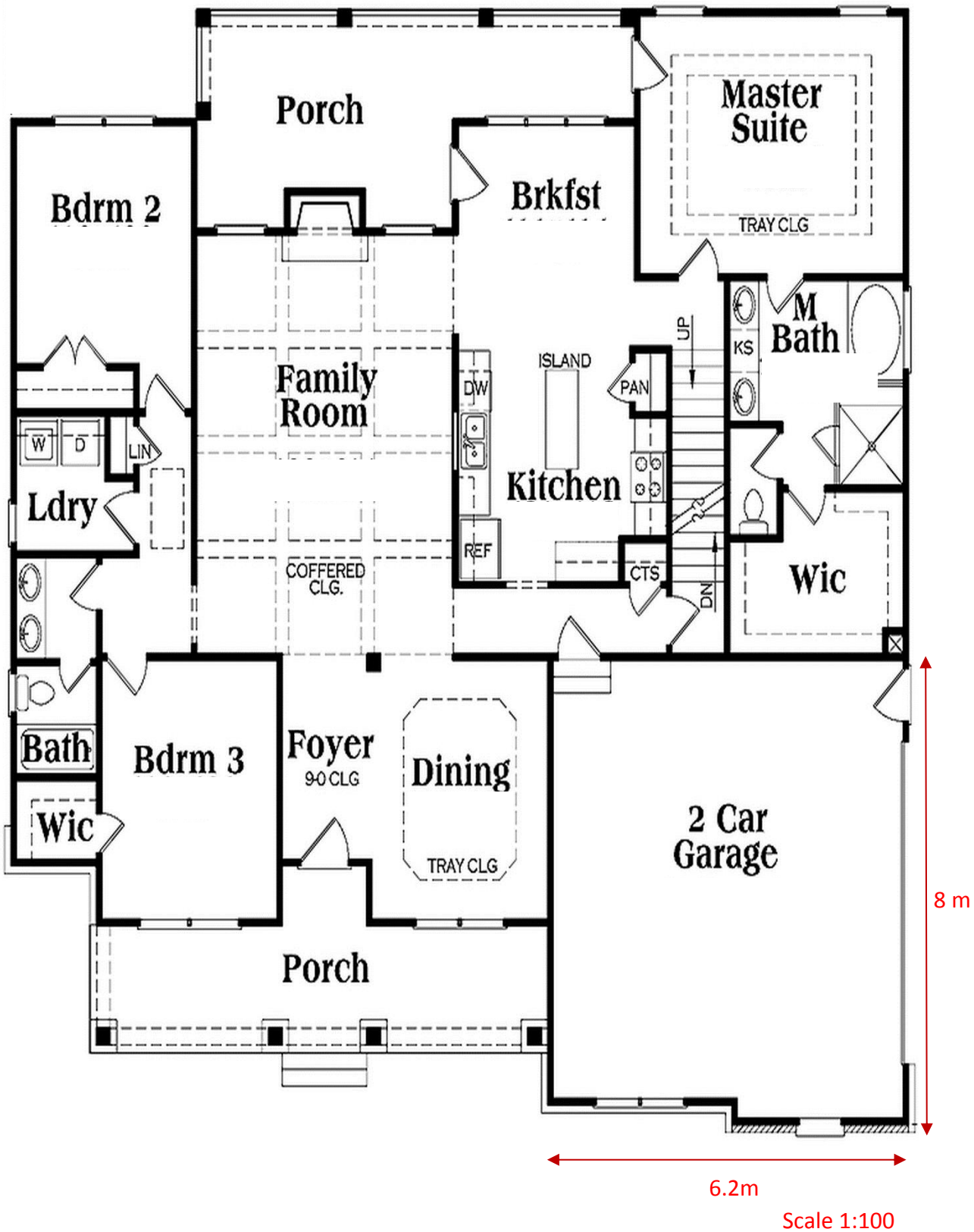
Example 2

The following floor plan has been drawn with a scale of 1:100. Measure the length and width of the double garage using a scale ruler. Mark the measurements on the floor plan.



Scale 1:100

Solution



Scale 1:100

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Question 5

Use a scale ruler with the 1:100 scale, measure the length and width of the following rooms.

a)

i) Bedroom 2
ii) Laundry
iii) Bathroom
iv) Bedroom 3
v) Family Room

b) Mark these measurements on the floor plan above.

Answers

a)

i) a) 5.62m x 3.2m
ii) a) 2.6m x 2.25m
iii) a) 4.0m 1.5m
iv) a) 4.8m x 3.2m
v) a) 7.6m x 4.6m

Question 6

Use a scale ruler with the 1:100 scale, measure the length and width of the following items.

i) Bath
ii) Kitchen Island
iii) Dryer Space
iv) Washer Space
v) Porch Steps

Answers

i) 1.3m x 0.9m
ii) 1.7m x 0.6m
iii) 0.8m x 0.7m
iv) 0.8m x 0.7m
v) 1.5m x 0.3m