

Time: 50 minutes

Marks: / 46 marks

## 11 Essentials Unit 2 Test

Calculator Assumed

Allowed: 1 page double sided notes, Ruler

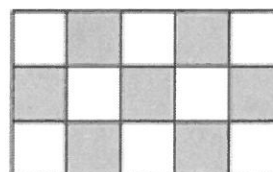
Name: Solutions

### MULTIPLE CHOICE

[7 marks]

- 1 The ratio of shaded parts to unshaded parts in the picture below is:

- ☒ A 7 : 8                      B 7 : 15  
C 8 : 7                      D 8 : 15  
E 15 : 7



- 2 The ratio of total parts to shaded parts in the picture above is:

- A 7 : 8                      B 7 : 15                      C 8 : 7  
D 8 : 15                      ☒ E 15 : 7

- 3 Which of the following is *not* equivalent to 8 : 12?

- A 2 : 3                      ☒ B 6 : 8                      C 4 : 6  
D 10 : 15                      E 16 : 24

- 4 Holly was 108 cm tall when she turned 5 years old, and 162 cm when she turned 14 years old. Her average rate of growth is:

A 5 cm/year      ☒ B 6 cm/year      C 7 cm/year  
D 8 cm/year      E 9 cm/year

- 5 Maria can touch type 150 words in 3 minutes. How many words can she type in 7 minutes?

A 200 words      B 250 words      C 300 words  
☒ D 350 words      E 400 words

- 6 Half an hour, converted to seconds, is:

A 36 seconds      B 180 seconds      C 360 seconds  
☒ D 1800 seconds      E 3600 seconds

- 7 Written in 24-hour time, 5:45 pm is:

A 1345      ☒ B 1745      C 0545  
D 1545      E 1945

## SHORT ANSWER

[39 marks]

### Question 1

[2 marks]

Complete this two way table:

	YES	NO	TOTAL
FEMALES	14	26	40
MALES	47	13	60
TOTAL	61	39	100

✓✓ (-1 per error)

### Question 2

[5 marks]

This graph shows the stopping distances for cars on different surfaces.

- a) Estimate the stopping distances for cars travelling in the following conditions.

- i) snow at 60 km/h

~ 100m ✓

- ii) gravel at 110 km/h

~ 230m ✓

- b) What are the three possible road conditions for a stopping distance of 120 metres?

dry road @ 100 km/h  
wet road @ 80 km/h  
gravel @ 80 km/h ✓

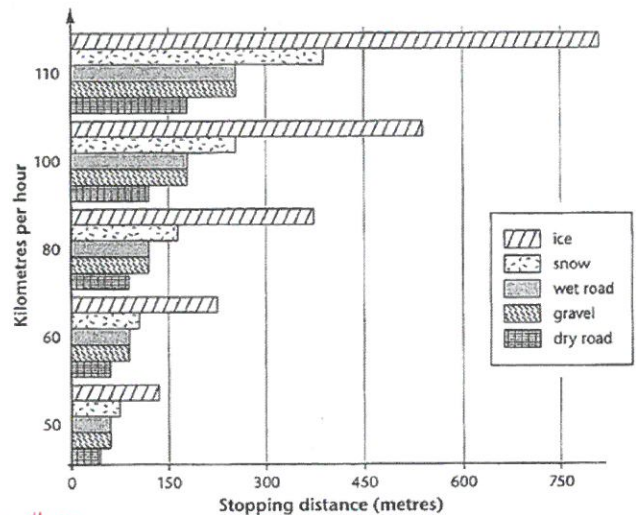
(Need all 3)

- c) Approximately how much further does it take to stop on ice than a dry road when you are travelling at 80 km/h?

$$375 - 90 = \sim 285m \quad \checkmark$$

- d) Approximately how much further does it take to stop from 110 km/h than at 60 km/h on a wet road?

$$230 - 80 = \sim 150m \quad \checkmark$$



**Question 3****[1, 1 = 2 marks]**

When there was a cyclone in Queensland, the price of bananas went up. They cost \$48.60 for 9 kilograms.

- a) What is the price per kilogram?

\$5.40 / kg ✓

- b) How much would it cost to buy 4 kilograms?

\$21.60 ✓

**Question 4****[5 marks]**

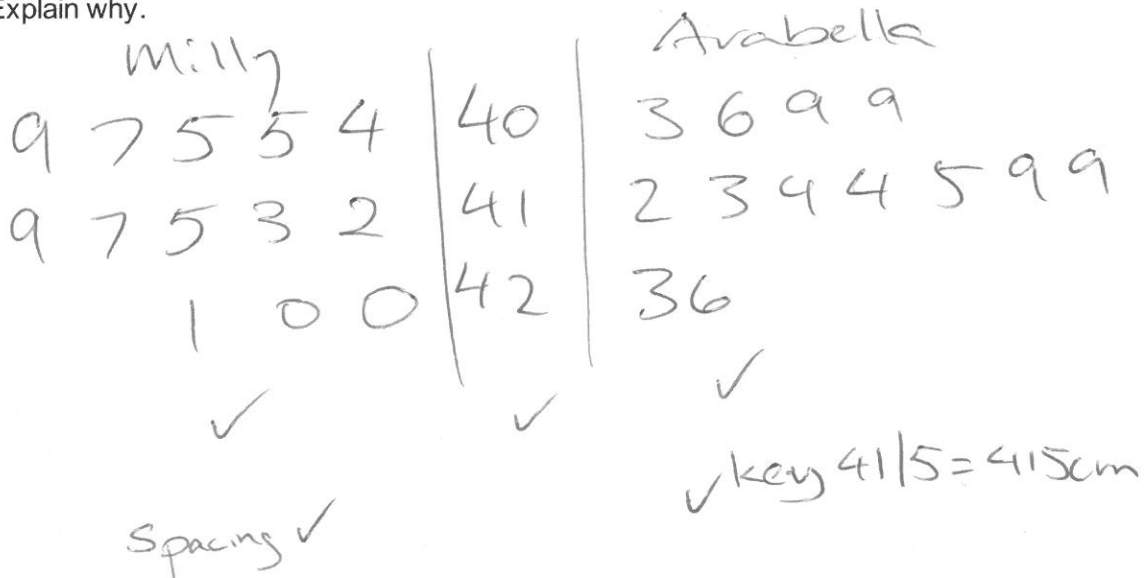
Milly entered the shotput at an athletics carnival. Her 14 distances are shown below (in cm):

415 412 407 413 421 405 419 420 409 405 420 404 417

Arabella has also entered the shotput. She recorded the following distances (in cm):

406 414 409 413 419 414 403 423 412 409 415 426 419

Draw a back-to-back stem-and-leaf plot for their distances. Who is better at shotput?, Explain why.

**Question 5****[2, 1 = 3 marks]**

The ratio of boys to girls in Year 11 is 5 : 6. There are 72 girls in Year 11.

- a) How many boys are there in Year 11?

Working:  $\frac{5}{6} = \frac{?}{72}$   $\rightarrow ? = 5 \times 12 = 60$  ✓  
Answer

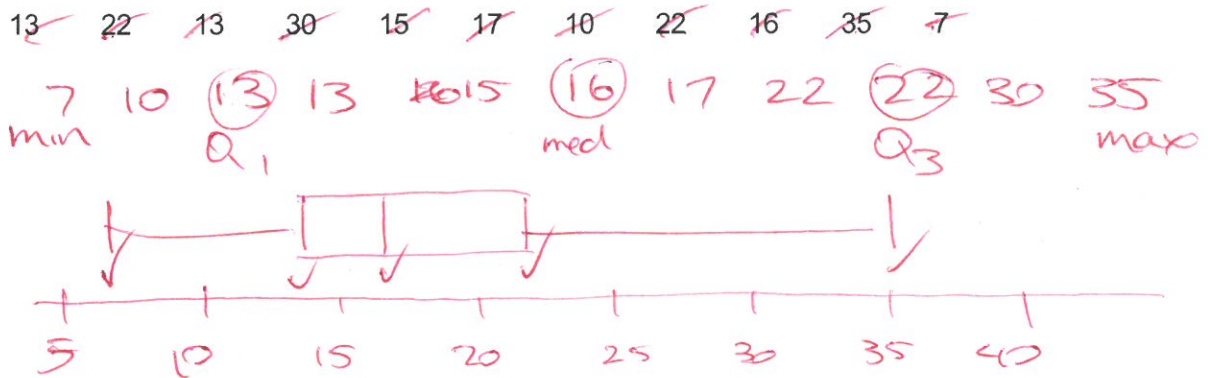
- b) What is the total number of students in the year level?

$72 + 60 = 132$  ✓

### Question 6

[5 marks]

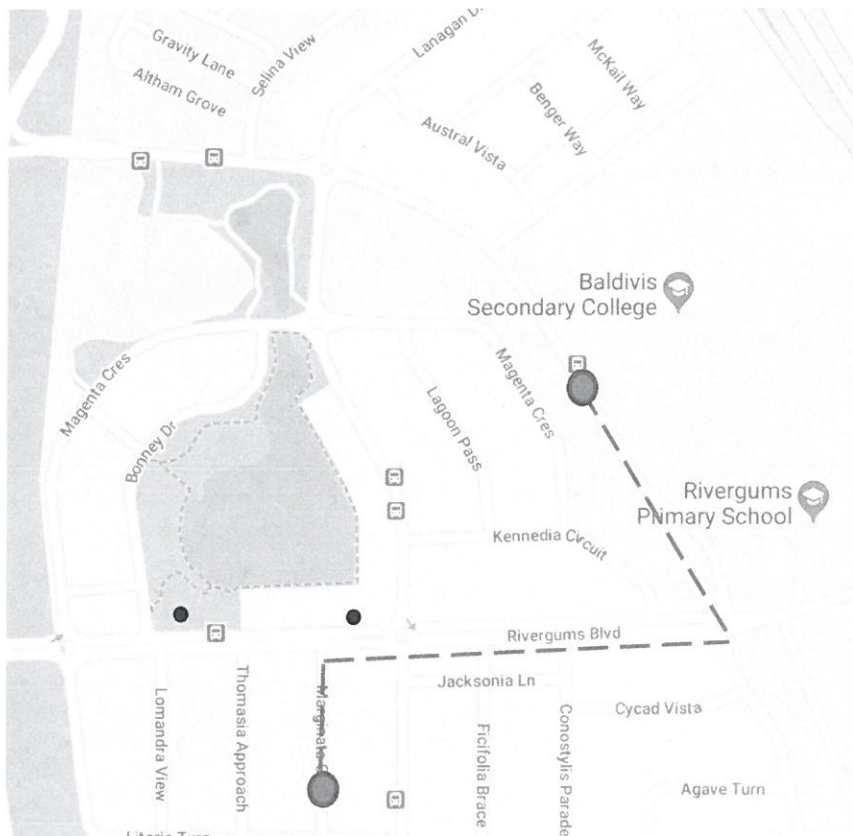
Draw a boxplot for the set of data below:



### Question 7

[2, 1 = 3 marks]

The scale is 1 : 1000. Calculate the real life-lengths of each feature on the map:



a. The width of the lake

$$2.5 \text{ cm} = 2500 \text{ cm} = 25 \text{ m}$$

b. If Tommy walks at a speed of 5m per minute, how long did it take him to walk to school?

$$\begin{aligned} \text{Total (approx)} &= 11.5 \text{ cm} \\ &= 115 \text{ m} \\ 115 \div 5 &= 23 \text{ min} \end{aligned}$$

Question 8

[8 marks]

Answer the following percentage questions, showing all working:

- a) What percentage of \$48 is \$3?

$$\frac{3}{48} \times 100 = 6.25\%$$

✓  
Working

✓  
Answer

- b) At the start of 2015, you earned \$350 per week in your job. If you first got a 4% pay rise and later got a 3% pay rise, how much do you now earn each week?

$$350 \times 1.04 = \$364$$

$$364 \times 1.03 = \$374.92$$

✓  
Working

✓  
Answer

- c) A plumber's quote is \$350 before GST. What is the total amount you will have to pay, including the 10% GST?

$$1.1 \times 350 = \$385$$

✓  
Working

✓  
Answer

- d) If \$4500 is invested for two and a half years and it earns \$528.75 interest, what is the interest rate per annum?

$$I = PRT$$

$$R = \frac{I}{(P \times T)} = \frac{528.75}{4500 \times 2.5} = 0.047 = 4.7\% \text{ pa}$$

✓  
Working

✓  
Answer

Question 9

[6 marks]

Daniel has moved out of home to live in a unit. He needs to be at work by 8:30am and has to catch a bus to a station and then a train. His walk from home to the bus stop takes 2 minutes. The bus trip takes 15 minutes and buses leave every 15 minutes from 6:00 am. The train trip takes 10 minutes and trains leave every 20 minutes from 6:05am. Daniel's workplace is a 5 minute walk from the station. What is the latest time Daniel can leave home and still get to work on time?

