

Practice Unit 4 NAB 1

End of unit assessment for Outcomes 1 to 3.

Refer to the accompanying worksheet for Question 6.

Outcome 1

Marks

1. a) Darren Parker works as a salesman for a double glazing company.

Name Darren Parker	Employee No. 00 579	Month 1	Tax Code 450L	NI Number NZ 34 29 H
Basic Salary £640	Overtime -	Commission ?	Gross Salary ?	
National Insurance	Income Tax	Pension ?	Total Deductions ?	
				Net Salary ?

He is paid a basic monthly salary of £640 plus commission of 9% of his total monthly sales. Calculate his gross salary for January when his sales amounted to £9500.

(2)

- b) 12% of Darren's gross monthly salary is paid into his pension fund. In January his national Insurance contribution was £65.50 and his Income Tax payment was £147.90.

Calculate Darren's net salary for January.

(3)

2. Jane Petersen is a secretary with an annual salary of £15 000. her annual tax allowances total £4905.

Use the information in the table below to calculate the amount of tax due on her salary.

Rates of Tax	Taxable Income £
Lower Rate 10%	0 to 1500
Basic Rate 23%	1501 to 28000
Higher Rate 40%	Over 28 000

(5)

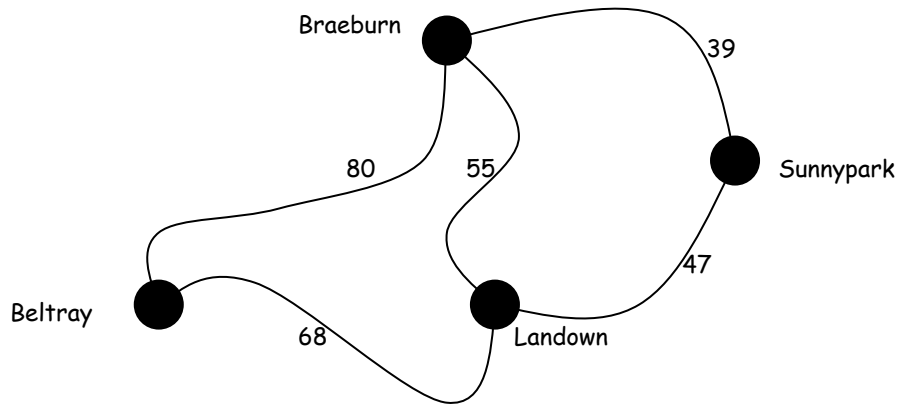
3. The table below shows the monthly repayments for paying back a loan from Burley Finance with and without payment protection (PP).

Burley Finance - Monthly Repayments						
	Amount	£1000	£2000	£3000	£4000	£5000
24 months	With PP	£60.83	£119.30	£178.94	£238.59	£295.26
	Without PP	£53.25	£104.68	£157.01	£203.95	£259.40
36 months	With PP	£45.33	£88.01	£132.22	£176.03	£216.73
	Without PP	£64.90	£74.22	£111.32	£148.43	£183.18

Frank McDonald wants to borrow £4000 and repay it over 24 months **without payment protection**. Calculate how much the loan will cost Frank.

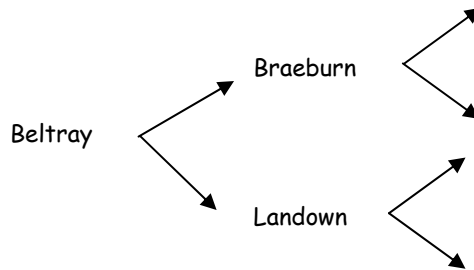
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4. The network diagram below shows routes and distances, in miles, between 4 places on a map.



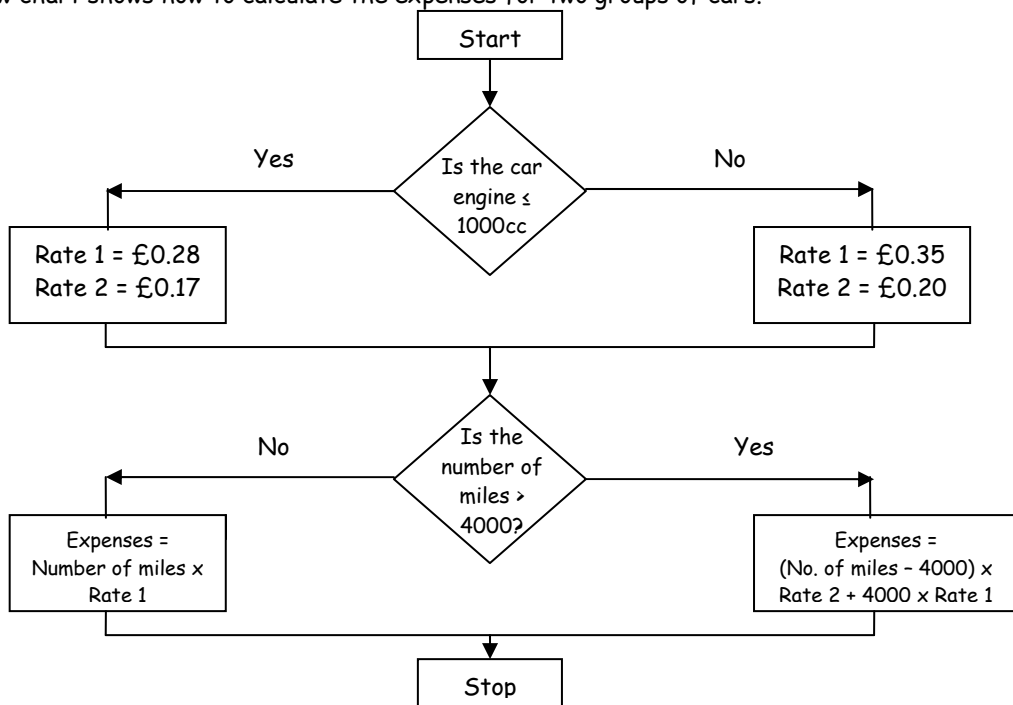
A delivery driver leaves Beltray and has to make deliveries in Braeburn, Sunnypark and Landown. He cannot go to any town more than once and does not need to return to Beltray.

a) Copy and complete the tree diagram below to show all the possible routes from Beltray which the driver can take. (3)



b) On your tree diagram mark the total length of each route and hence write down the shortest distance. (3)

5. The Inland revenue allows car expenses to be claimed when a car is used for business journeys. The flow chart shows how to calculate the expenses for two groups of cars.



Use the flowchart to calculate the expenses for 7500 business miles in a 1500 cc car.

6. See worksheet
The table below shows the number of visitors to an exhibition each day over a two week period.

Week	Mon	Tues	Wed	Thurs	Fri	Sat	Sun
1	147	139	168	153	204	295	286
2	306	159	132	149	188	259	293
3	137	144	176	165	190	319	297

- a) Enter this data into the spreadsheet grid on the worksheet. (2)
- b) Write down the formula which will be entered to calculate the total number of visitors for week 2. (1)
- c) Write down the formula which will be entered to calculate the average daily attendance over the three week period. (2)

Outcome 3

7. The formula below converts a temperature in degrees Celsius into degrees Fahrenheit.

'multiply by 9, divide by 5 and add on 32'

Use the formula to convert 16 degrees Celsius into degrees Fahrenheit.

(3)

8. When a stone is dropped from rest the distance, s metres, after t seconds is given by the formula

$$s = \frac{1}{2}gt^2, \text{ where } g = 9.8$$

Use the formula to find how far the stone will fall after 3.5 seconds.

(3)

Report on Statistical Assignment

Outcome 4

Carry out a short statistical assignment involving two (or more) sets of data and write a report on it which includes the following features:

- Each of the data sets is tabulated in a frequency table using groups for discrete data and intervals for continuous data. (5)
- Each of the data sets is analysed (i.e. a numerical summary of appropriate measures is calculated). (5)
- The two sets of data are compared by the use of an appropriate display, statistical measures and textual content. (6)

The statistical assignment should use the statistical content listed in the detailed course content for this unit.

Solutions

Outcome 1 (Threshold score 9 out of 13)

1. a) Commission = 9% of £9500
= $9/100 \times 9500$
= **£855 ✓**

Gross Salary = Basic Pay + Commission
= £640 + £855
= **£1495 ✓**

2 marks

b) NI = £65.50
Income Tax = £147.90
Pension = 12% of £1495
= $12/100 \times 1495$
= £179.40 ✓
Total Deductions = £65.50 + £147.90 + £179.40
= £392.80 ✓
Net Salary = £1495 - £392.80
= **£1102.20 ✓**

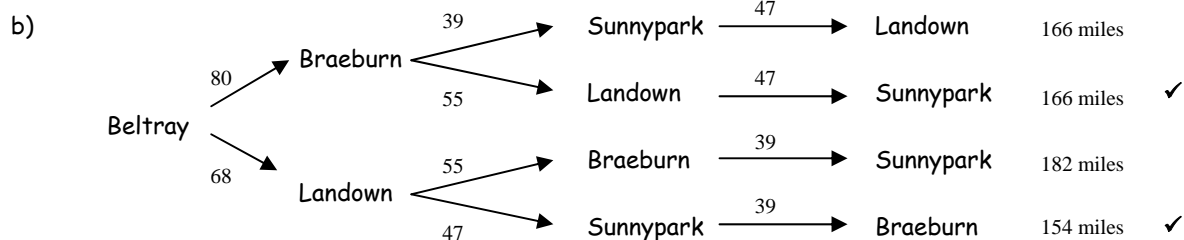
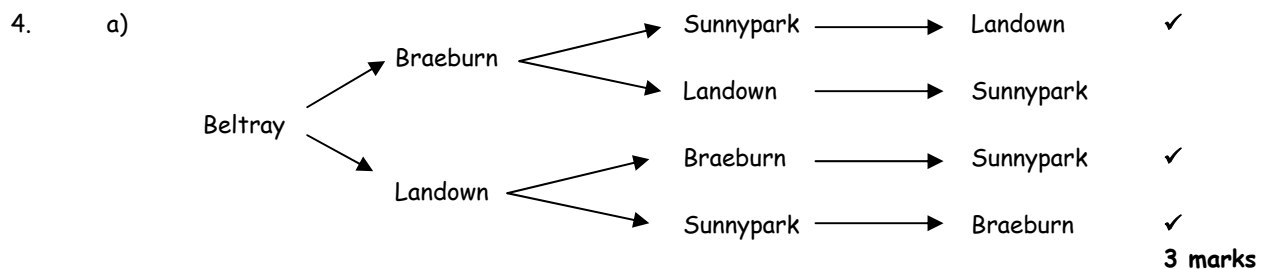
3 marks

2. Taxable Income = £15 000 - £4905
= £10 095 ✓
Lower rate = 10% of £1500
= £150 ✓
Basic rate = 23% of (10 095 - 1500)
= 23% of 8595
= $23/100 \times 8595$
= £1976.85 ✓
Total Tax Due = £150 + £1976.85
= **£2126.85 ✓**

5 marks

3. From the table, monthly repayment = £203.95 ✓
 Total repayment = 24 x £203.95 = £4894.80 ✓
 Cost of loan = £4894.80 - £4000 = **£894.80** ✓ **3 marks**

Outcome 2 (Threshold score 10 out of 15)



The shortest distance is 154 miles. ✓

5. Rate 1 = £0.35
 Rate 2 = £0.20 ✓
- Expenses = (No. of miles - 4000) x Rate 2 + 4000 x Rate 1 ✓
 = (7500 - 4000) x 0.20 + 4000 x 0.35 ✓
 = 3500 x 0.20 + 4000 x 0.35
 = **£2100** ✓ **4 marks**

6. a)

	A	B	C	D	E	F	G	H
1	Week	Mon	Tues	Wed	Thurs	Fri	Sat	Sun
2	1	147	139	168	153	204	295	286
3	2	306	159	132	149	188	259	293
4	3	137	144	176	165	190	319	297
5								
6								

b) = SUM (B3 : H3) (or correct cells for part a)

c) = AVERAGE (B2 : H4) (or correct cells for part a)

Outcome 3 (Threshold score 4 out of 6)

$$\begin{aligned} 7. \quad F &= \frac{16 \times 9}{5} + 32 \quad \checkmark \\ &= \frac{144}{5} + 32 \quad \checkmark \\ &= 28.8 + 32 \\ &= 60.8 \text{ } ^\circ\text{F} \quad \checkmark \end{aligned}$$

3 marks

$$\begin{aligned} 8. \quad s &= \frac{1}{2} g t^2 \\ s &= \frac{1}{2} \times 9.8 \times 3.5^2 \quad \checkmark \\ s &= \frac{1}{2} \times 9.8 \times 12.25 \quad \checkmark \\ s &= 60.025 \text{ m} \quad \checkmark \end{aligned}$$

3 marks

Practice Unit 4 NAB 2

End of unit assessment for Outcomes 1 to 3.

Refer to the accompanying worksheet for Question 6.

Outcome 1

Marks

1. a) Darren Parker works as a salesman for a double glazing company.

Name Darren Parker	Employee No. 00 579	Month 1	Tax Code 450L	NI Number NZ 34 29 H
Basic Salary £520	Overtime -	Commission ?	Gross Salary ?	
National Insurance	Income Tax	Pension ?	Total Deductions ?	
				Net Salary ?

He is paid a basic monthly salary of £640 plus commission of 7% of his total monthly sales. Calculate his gross salary for January when his sales amounted to £12 600. (2)

- b) 8% of Darren's gross monthly salary is paid into his pension fund. In January his national Insurance contribution was £58.40 and his Income Tax payment was £147.90. Calculate Darren's net salary for January. (3)

2. Jane Petersen is a secretary with an annual salary of £18 500. Her annual tax allowances total £4560.

Use the information in the table below to calculate the amount of tax due on her salary.

Rates of Tax	Taxable Income £
Lower Rate 10%	0 to 1500
Basic Rate 23%	1501 to 28000
Higher Rate 40%	Over 28 000

(5)

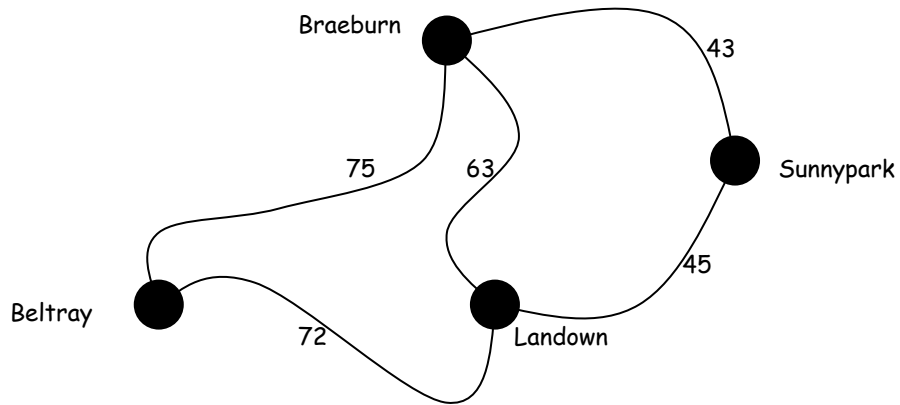
3. The table below shows the monthly repayments for paying back a loan from Burley Finance with and without payment protection (PP).

Burley Finance - Monthly Repayments						
	Amount	£1000	£2000	£3000	£4000	£5000
24 months	With PP	£60.83	£119.30	£178.94	£238.59	£295.26
	Without PP	£53.25	£104.68	£157.01	£203.95	£259.40
36 months	With PP	£45.33	£88.01	£132.22	£176.03	£216.73
	Without PP	£64.90	£74.22	£111.32	£148.43	£183.18

Frank McDonald wants to borrow £3000 and repay it over 24 months **with payment protection**. Calculate how much the loan will cost Frank.

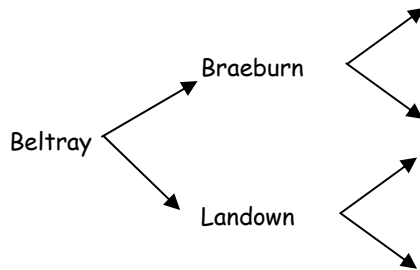
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4. The network diagram below shows routes and distances, in miles, between 4 places on a map.



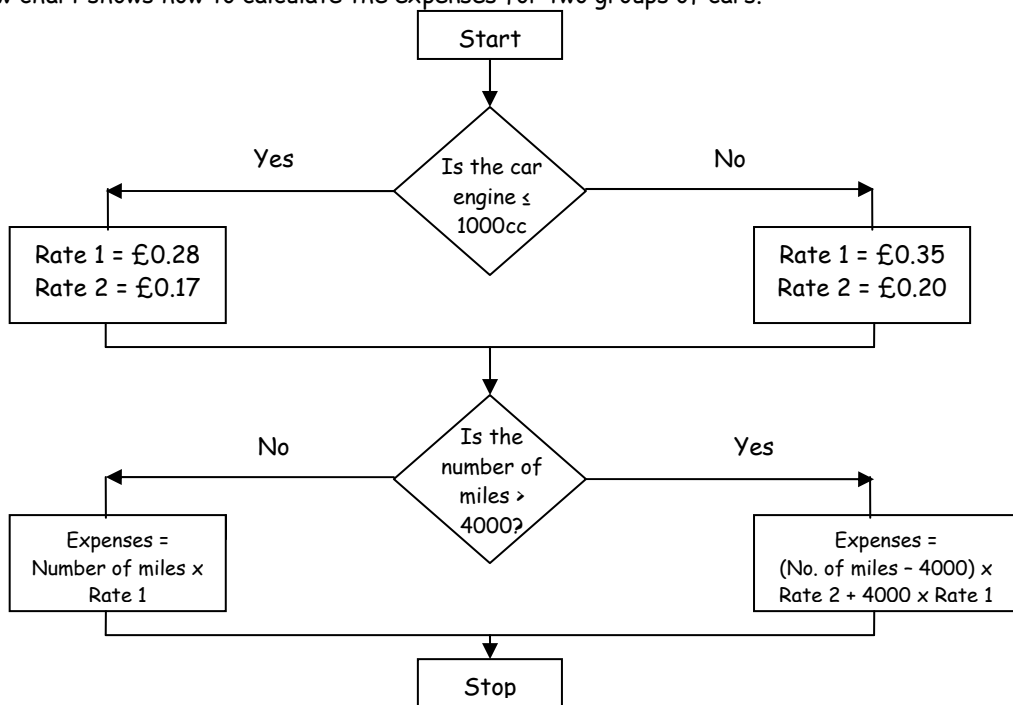
A delivery driver leaves Beltray and has to make deliveries in Braeburn, Sunnypark and Landown. He cannot go to any town more than once and does not need to return to Beltray.

a) Copy and complete the tree diagram below to show all the possible routes from Beltray which the driver can take. (3)



b) On your tree diagram mark the total length of each route and hence write down the shortest distance. (3)

5. The Inland revenue allows car expenses to be claimed when a car is used for business journeys. The flow chart shows how to calculate the expenses for two groups of cars.



Use the flowchart to calculate the expenses for 3500 business miles in a 950 cc car.

(4)

6. See worksheet
The table below shows the number of visitors to an exhibition each day over a two week period.

Week	Mon	Tues	Wed	Thurs	Fri	Sat	Sun
1	126	147	132	215	186	276	257
2	144	153	194	178	220	293	274
3	134	175	166	148	206	302	278

- a) Enter this data into the spreadsheet grid on the worksheet. (2)
- b) Write down the formula which will be entered to calculate the total number of visitors for week 3. (1)
- c) Write down the formula which will be entered to calculate the average daily attendance over first two weeks. (2)

Outcome 3

7. The formula below converts a temperature in degrees Celsius into degrees Fahrenheit.

'multiply by 9, divide by 5 and add on 32'

Use the formula to convert 22 degrees Celsius into degrees Fahrenheit.

(3)

8. When a stone is dropped from rest the distance, s metres, after t seconds is given by the formula

$$s = \frac{1}{2}gt^2, \text{ where } g = 9.8$$

Use the formula to find how far the stone will fall after 5.6 seconds.

(3)

Report on Statistical Assignment

Outcome 4

Carry out a short statistical assignment involving two (or more) sets of data and write a report on it which includes the following features:

- Each of the data sets is tabulated in a frequency table using groups for discrete data and intervals for continuous data. (5)
- Each of the data sets is analysed (I.e. a numerical summary of appropriate measures is calculated). (5)
- The two sets of data are compared by the use of an appropriate display, statistical measures and textual content. (6)

The statistical assignment should use the statistical content listed in the detailed course content for this unit.

Solutions

Outcome 1 (Threshold score 9 out of 13)

1. a) Commission = 7% of £12600
= $7/100 \times 12600$
= **£882 ✓**

Gross Salary = Basic Pay + Commission
= £520 + £882
= **£1402 ✓**

2 marks

b) NI = £58.40
Income Tax = £147.90
Pension = 8% of £1402
= $8/100 \times 1402$
= £112.16 ✓
Total Deductions = £58.40 + £147.90 + £112.16
= £318.46 ✓
Net Salary = £1402 - £318.46
= **£1083.54 ✓**

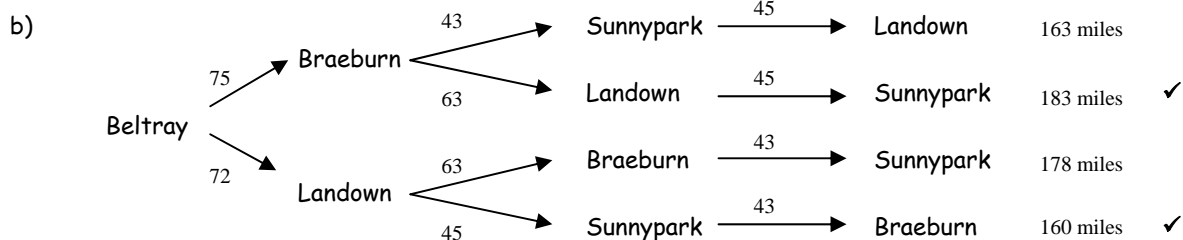
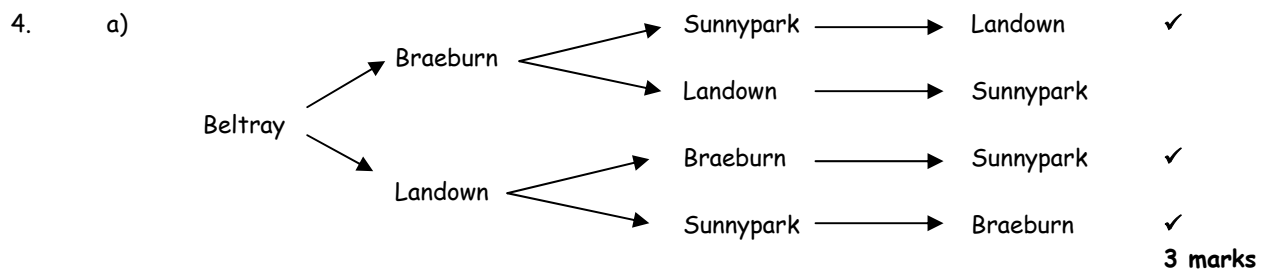
3 marks

2. Taxable Income = £18 500 - £4560
= £13 940 ✓
Lower rate = 10% of £1500
= £150 ✓
Basic rate = 23% of (13 940 - 1500)
= 23% of 12 440
= $23/100 \times 12 440$
= £2864.20 ✓
Total Tax Due = £150 + £2864.20
= **£3011.20 ✓**

5 marks

3. From the table, monthly repayment = £178.94 ✓
 Total repayment = 24 x £178.94 = £4294.56 ✓
 Cost of loan = £4294.56 - £3000 = **£1294.56** ✓ **3 marks**

Outcome 2 (Threshold score 10 out of 15)



The shortest distance is 160 miles. ✓

5. Rate 1 = £0.28
 Rate 2 = £0.17 ✓
 Expenses = No. of miles x Rate 1 ✓
 = 3500 x 0.28 ✓
 = **£980** ✓ **4 marks**

6. a)

	A	B	C	D	E	F	G	H
1	Week	Mon	Tues	Wed	Thurs	Fri	Sat	Sun
2	1	126	147	132	215	186	276	257
3	2	144	153	194	178	220	293	274
4	3	134	175	166	148	206	302	278
5								
6								

b) = SUM (B3 : H3)

c) = AVERAGE (B2 : H3)

Outcome 3 (Threshold score 4 out of 6)

$$7. \quad F = \frac{22 \times 9}{5} + 32 \quad \checkmark$$

$$= \frac{198}{5} + 32 \quad \checkmark$$

$$= 39.6 + 32$$

$$= 71.6 \text{ } ^\circ\text{F} \quad \checkmark$$

3 marks

$$8. \quad s = \frac{1}{2} g t^2$$

$$s = \frac{1}{2} \times 9.8 \times 5.6^2 \quad \checkmark$$

$$s = \frac{1}{2} \times 9.8 \times 31.36 \quad \checkmark$$

$$s = 153.7 \text{ m} \quad \checkmark$$

3 marks

