

# *Spring Progress Check Revision Material*

*Year 9 Set 4 - 6*

*Foundation 1*

*Test Date: Friday 26 Jan*

*How to revise for Maths?*

- *Practise is key! Attached you will find some questions to help you do that.*
- *Once you've answered the questions – mark your work.*
- *If you get something wrong, look back on what you did and try work out where your mistake is. Unsure? Take your answers to your teacher or to Maths club on a Thursday and get help ahead of the test!*
- *Good luck!*

NAME

- 1 Harry buys 42 packets of crisps for a party. Each packet costs £0.45.

Work out the total cost of all the crisps.

(2 marks)

- 2 The table shows the minimum and maximum temperatures during a week in December.

Day	Minimum temperature (°C)	Maximum temperature (°C)
Monday	-4	3
Tuesday	-2	2
Wednesday	-1	4
Thursday	-5	2
Friday	-4	4

- a On which day is the temperature lowest?

(1 mark)

- b How many degrees higher was the minimum temperature on Wednesday than the minimum temperature on Monday?

(1 mark)

- c On which day is the difference between maximum and minimum temperatures greatest?

(1 mark)

- 3 Four people share the cost of a taxi journey equally between them. The fare is £13.53. How much should they each pay?

(3 marks)




4 Work out:

a  $12 - (3 + 7)$

(1 mark)

b  $12^2 - \sqrt{18} - 2$

(2 marks)



5 At the end of 2012 there were 34.5 million vehicles on the roads in the UK.

In 1950 there were just over 3 million vehicles on the roads. Work out an estimate for how many times greater the number of vehicles on the road was in 2012 than in 1950.

(3 marks)



6 Work out:

a  $50^2$

(1 mark)

b  $0.1^3$


(1 mark)

c  $\sqrt{0.04}$

(1 mark)

d  $\sqrt[3]{1000}$

(1 mark)




7 Given that  $57 \times 31 = 1767$ , write down the value of:

a  $5.7 \times 3.1$

(1 mark)

b  $0.1767 \div 0.31$

(1 mark)



8 Write each of these as a power of 5.

a  $5^7 \times 5^3$


(1 mark)

b  $5^8 \div 5^5$

(1 mark)

c  $(5^2)^5$

(1 mark)



9 a Express 24 and 36 as products of their prime factors.

(2 marks)

b For the numbers 24 and 36

i find the highest common factor

(2 marks)

ii find the lowest common multiple.

(2 marks)



10 Work out the value of  $\frac{(3.5 \times 0.71)^3}{\sqrt{8.2^2 - 7.5}}$

a Write down all the figures on your calculator display.

(2 marks)

b Give your answer to 2 significant figures.

(1 mark)

Overall mark	/32
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Q	Answer	Mark	Comment
1	$42 \times 0.45$	M1	
	$= \text{£}18.90$	A1	
2a	Thursday	A1	
2b	3 degrees	A1	
2c	Friday	A1	
3	$13.53 \div 4$	M1	
	$= 3.3825$	A1	
	$= \text{£}3.39$	A1	For rounding up and giving in pounds and pence.
4a	2	A1	
4b	$144 - 4$	M1	
	$= 140$	A1	
5	$34.5 \div 3 \approx 33 \div 3$	M2	1 for rounding, 1 for division.
	$= 11$	A1	
	OR		
	$3 \div 3 \approx 36 \div 3$	M2	
	$= 12$	A1	
6a	2500	A1	
6b	0.001	A1	
6c	0.2	A1	
6d	10	A1	
7a	17.67	A1	
7b	0.57	A1	
8a	$5^{10}$	A1	
8b	$5^3$	A1	
8c	$5^{10}$	A1	

Q	Answer	Mark	Comment
9a	$24 = 2^3 \times 3$	A1	Allow $2 \times 2 \times 2 \times 3$
	$36 = 2^2 \times 3^2$	A1	Allow $2 \times 2 \times 3 \times 3$
9b i	$2 \times 2 \times 3$	M1	
	$= 12$	A1	
9b ii	$2 \times 2 \times 2 \times 3 \times 3$	M1	
	$= 72$	A1	
10a	$\frac{15.34543413}{\sqrt{59.74}}$	M1	
	$= 1.985393383$	A1	Allow M1, A1 if just answer seen.
10b	2.0	A1	

**Progression Step Boundaries**

Mark boundary	Step
0	U
1	1 <sup>st</sup>
3	2 <sup>nd</sup>
6	3 <sup>rd</sup>
9	4 <sup>th</sup>
14	5 <sup>th</sup>
19	6 <sup>th</sup>
24	7 <sup>th</sup>

NAME

- 1 This frequency table records the age of members of a club.

Age (years)	$10 \leq a < 20$	$20 \leq a < 30$	$30 \leq a < 40$	$40 \leq a < 50$	$50 \leq a < 60$
Frequency	2	5	9	7	1

- a How many members are there in total?

(1 mark)

- b How many members are less than 40 years old?

(1 mark)

- 2 The chart shows the time, in minutes, that it takes Mr Murphy to cycle between four different towns.

Bootlebury			
12	Stroud		
18	4	Cranford	
35	29	19	Mailhill

How long does it take him to cycle from:

- a Stroud to Cranford

(1 mark)

- b Cranford to Bootlebury?

(1 mark)



- 3 The table gives the types of pet owned by students in Class 10A.

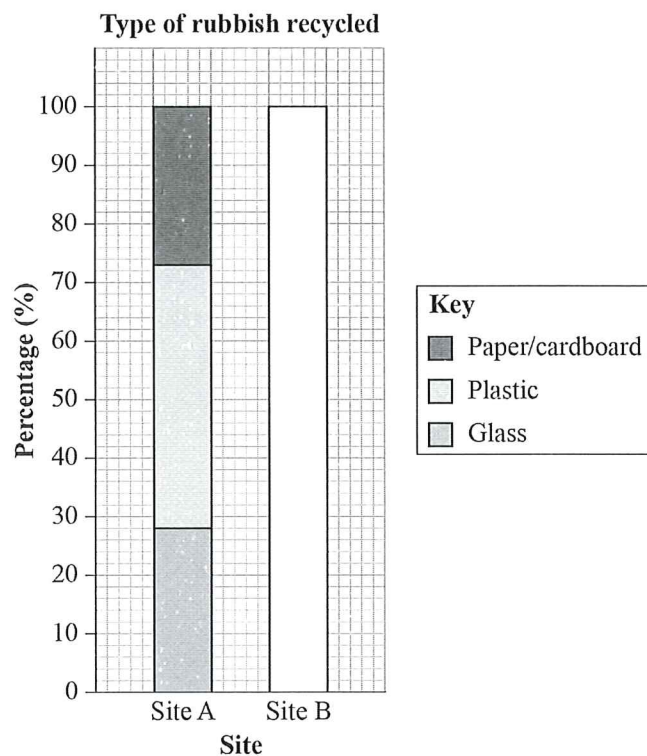
Pet	Frequency
Cat	15
Dog	9
Other	12

Draw an accurate pie chart to show this information.

**(4 marks)**

- 4 The incomplete table and composite bar chart show the type of rubbish recycled at two different recycling centres.

	Site A	Site B
Paper/cardboard		36%
Plastic		34%
Glass		30%



- a Use the information from the composite bar chart to complete the table.

(3 marks)

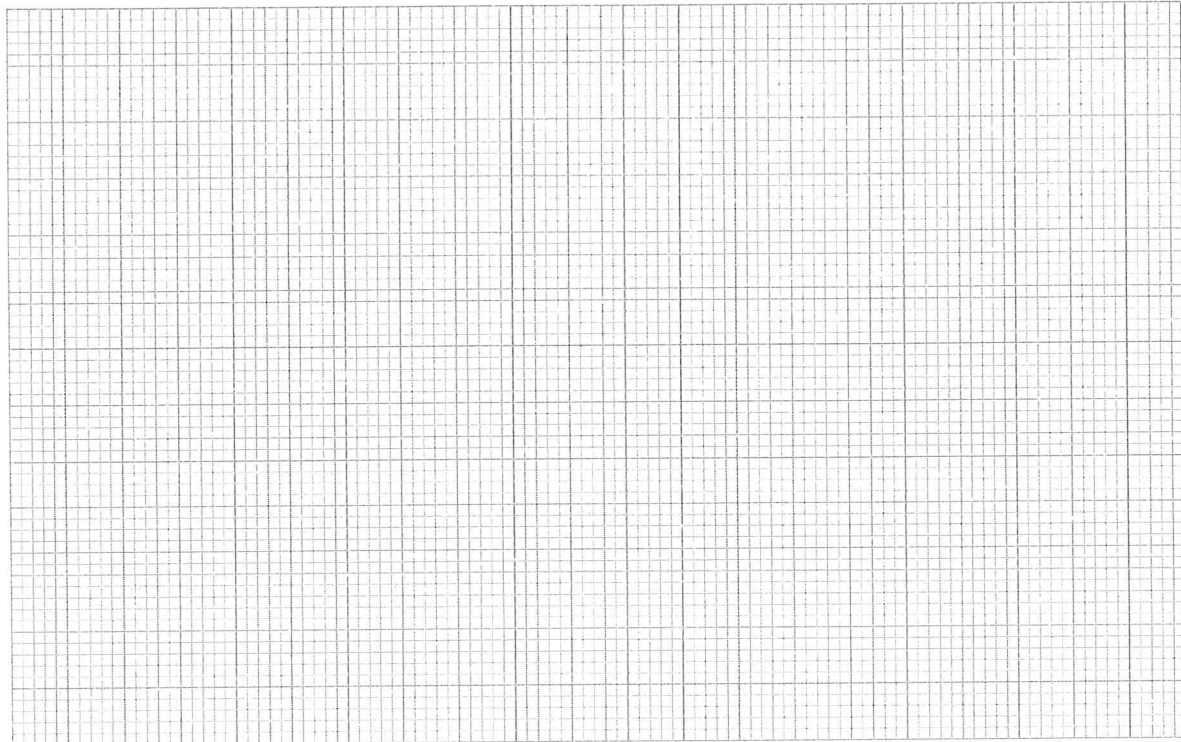
- b Use the information from the table to complete the Site B bar on the chart.

(2 marks)

- 5 The mass (in kg) of a baby in hospital is recorded every day for 8 days.

Day	1	2	3	4	5	6	7	8
Mass (kg)	2.12	2.11	2.10	2.12	2.13	2.13	2.15	2.15

Draw a time series graph to represent this data.



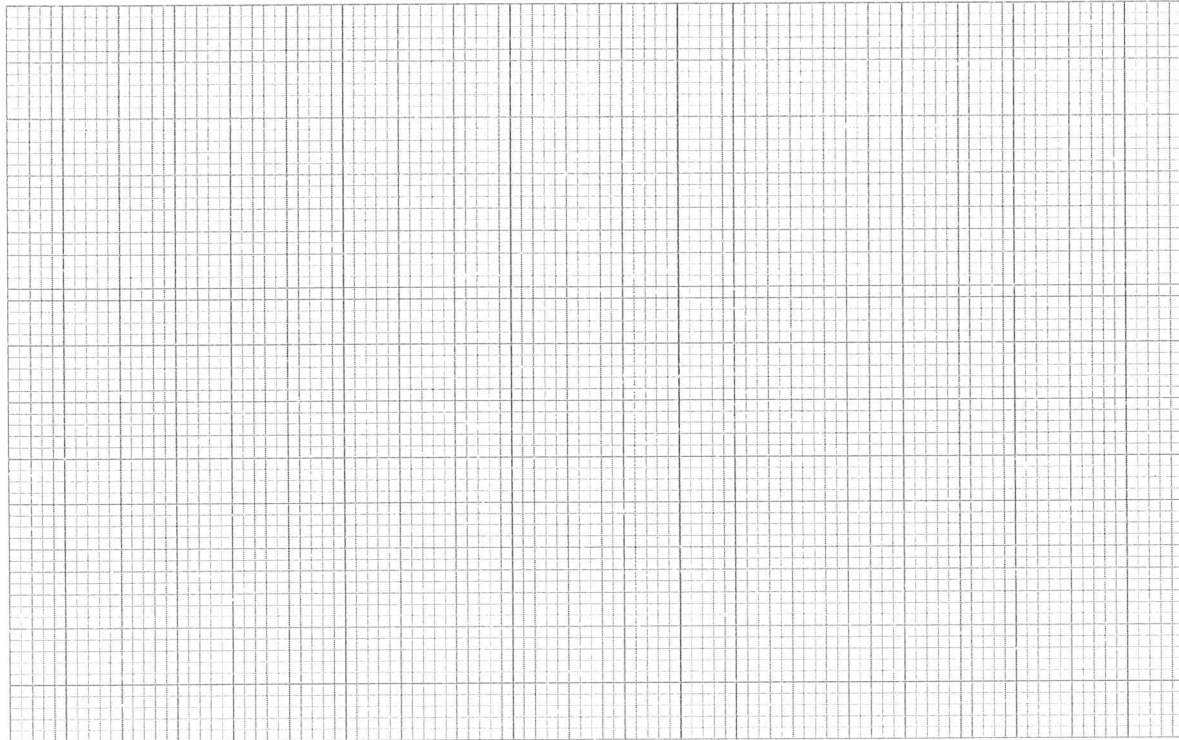
(3 marks)



- 6 Julia measures the length and mass of 10 bats of the same species.

Length (cm)	9	8	6	10	8	11	5	7	12	9
Mass (g)	57	54	50	58	52	61	49	50	60	55

- a Draw a scatter graph and a line of best fit.



(3 marks)

- b What is the type of correlation between length and mass?

(1 mark)

- c A bat has a length of 8.5 cm and a mass of 72 g.  
Is this bat likely to be the same species as the others?  
Explain your answer.

(1 mark)



- 7 A restaurant offers a fixed menu. The main course is chicken, beef or fish.  
 One night there were 100 customers at the restaurant.  
 38 of the customers were women.  
 13 of the women chose the fish.  
 44 of the customers chose chicken.  
 26 of the customers who chose chicken were men.  
 19 men chose beef.  
 Work out the number of customers who chose fish.

**(4 marks)**

- 8 Amy and Khan recorded the number of hits they had on their new blogs in the first 8 days.

Amy	71	83	72	68	61	93	82	75
Khan	88	53	69	72	81	64	69	58

- a Draw a back-to-back stem and leaf diagram for this data.

**(3 marks)**

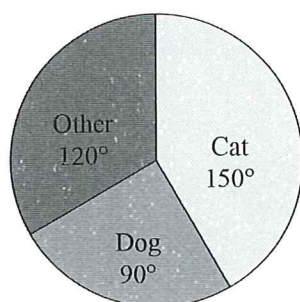
- b Whose blog was more popular?

**(1 mark)**

Overall mark	/29
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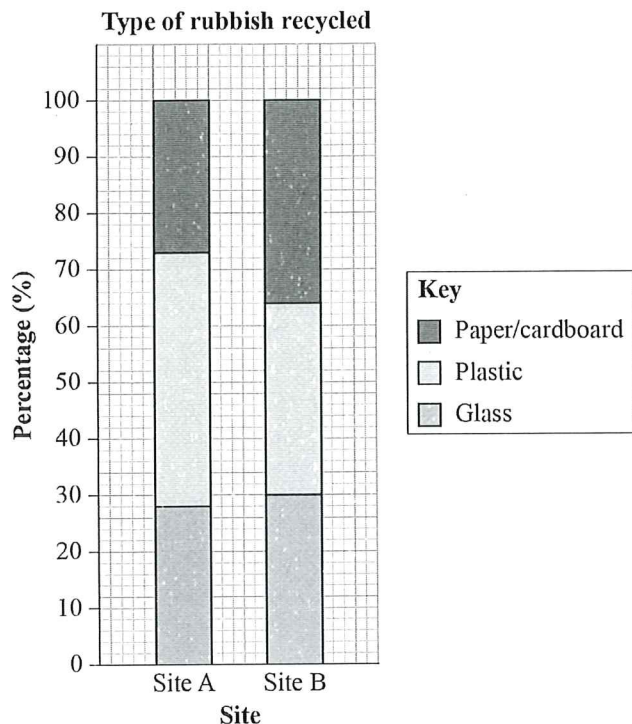
Q	Answer	Mark	Comment
1a	24	A1	
1b	16	A1	
2a	4 minutes	A1	
2b	18 minutes	A1	
3	$15 + 9 + 12 = 36$		
	$360^\circ \div 36 = 10^\circ$	M1	For finding $10^\circ$ to represent one student.
	$\text{Cat} = 15 \times 10^\circ = 150^\circ$		
	$\text{Dog} = 9 \times 10^\circ = 90^\circ$		
	$\text{Other} = 12 \times 10^\circ = 120^\circ$	M1 A1	A1 for calculating angles correctly.
	See the pie chart	A1	For accurately constructed pie chart.

Type of pet owned by Class 10A

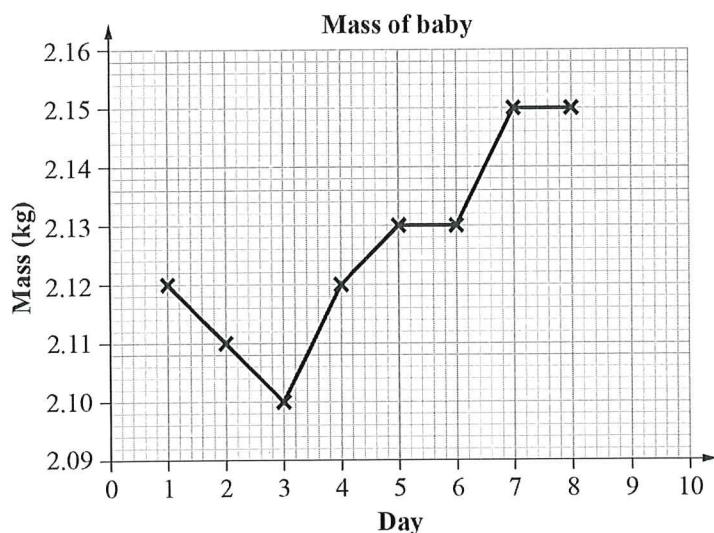


4a	Paper/cardboard 27%	A1	
	Plastic 45%	A1	
	Glass 28%	A1	
4b	See the table and graph	A2	1 mark for each correct section of bar for Site B.

	Site A
Paper/cardboard	27% (A1)
Plastic	45% (A1)
Glass	28% (A1)

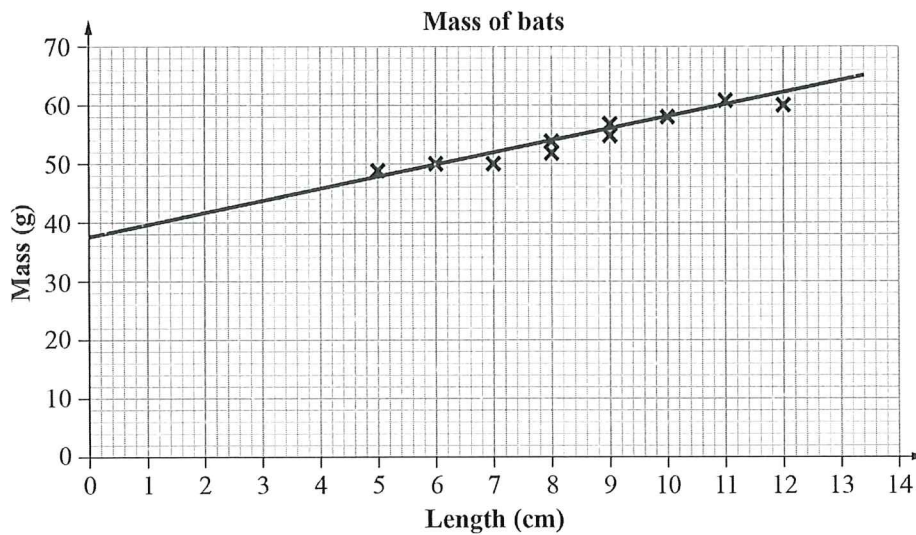


Q	Answer	Mark	Comment
5	See the graph	M2 A1	M1 for appropriately labelled axes. M2 for accurately plotting points, deduct 1 mark for each incorrectly plotted point. A1 for joining with straight lines.





Q	Answer	Mark	Comment
6a	See the graph	M2 A1	M1 for appropriate labelled axes. M2 for accurately plotting points. Deduct 1 mark for each incorrectly plotted point. A1 for line of best fit plotted with roughly the same number of points on each side.



6b	Positive	A1	
6c	No, you would expect a bat of this species with length 8.5 cm to weigh approximately 55 g.	A1	
7	See the table	M3 A1	Allow all 4 marks if sensible calculations made, resulting in 17.

	Chicken	Beef	Fish	Total
Women	$44 - 26 = 18$ (M1)	$38 - (18 + 13) = 7$ (M1)	13	38
Men	26	19	$30 - 13 = 17$ (A1)	$100 - 38 = 62$ (M1)
Total	44	$19 + 7 = 26$	$100 - (44 + 26) = 30$	100



Q	Answer	Mark	Comment
8a	See the graph	M3	M1 for correct stem. M1 for correct leaves. M1 for key.

Khan                      Amy

8 3	5		1 8
9 9 4	6		1 2 5
2	7		2 3
8 1	8		9 3
	9		

**Key:**

3 | 5 means 53 for Khan

6 | 1 means 61 for Amy

<b>8b</b>	Amy's	A1	
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**Progression Step Boundaries**

Mark boundary	Step
0	U
2	2 <sup>nd</sup>
4	3 <sup>rd</sup>
9	4 <sup>th</sup>
14	5 <sup>th</sup>
19	6 <sup>th</sup>
24	7 <sup>th</sup>

NAME

1 Simplify.

a  $4y - 8y + 6y$

(1 mark)

b  $2y \times 3y$

(1 mark)

c  $\frac{12y}{3}$

(1 mark)

2 Simplify.

a  $5t^2 - 10t + 4t - 3t^2$

(2 marks)

b  $6t^3 \times 2t^2$

(2 marks)

3 Expand and simplify.

a  $7(3 + a)$

(1 mark)

b  $a(b - 2) - b(a + 1)$

(3 marks)

4 Factorise completely.

a  $16a + 40$

(1 mark)

b  $12x^2 - 3x$

(1 mark)

c  $b^4 - b^3$

(1 mark)

5 Work out the value of each expression when  $x = 2$  and  $y = -3$

a  $x + y$

(1 mark)

b  $\frac{9x}{y^2}$

(1 mark)

c  $3y + (x - y)^2$

(2 marks)

6 Choose the correct sign,  $\neq$  or  $=$ .

$x^2 \square 2x$

(1 mark)

7 In a shop tea costs  $\pounds t$  and coffee costs  $\pounds c$ .

Write an expression in terms of  $t$  and  $c$  for the cost of 4 teas and 5 coffees.

(2 marks)

8 State whether each of these is an expression, formula or identity.

a  $2a^2 - b$

(1 mark)

b  $2(x + 9) - 3(x + 2) = -x + 12$

(1 mark)

c  $A = b \times h$

(1 mark)

9 Use the formula  $v = \frac{4m^2}{2b(x-5)}$  to work out the value of  $v$  when  $m = 10$ ,  $b = 5$  and  $x = 7$

(2 marks)

10 The speed,  $S$ , at which a car is travelling can be found by dividing the distance travelled,  $D$ , by the time taken,  $T$ .

a Write a formula for  $S$  in terms of  $D$  and  $T$ .

(1 mark)

b Work out the speed of a train that travels 750 miles in  $1\frac{1}{2}$  hours.

(2 marks)

Overall mark

/29



Q	Answer	Mark	Comment
1a	$2y$	A1	
1b	$6y^2$	A1	
1c	$4y$	A1	
2a	$2t^2 - 6t$	M1 A1	M1 for correct terms but incorrect sign.
2b	$12t^5$	A2	A1 for 12, A2 for $t^5$
3a	$21 + 7a$	A1	
3b	$-2a - b$	M2 A1	M2 for correct expansion, deduct 1 mark for each incorrect sign: $ab - 2a - ba - b$ .
4a	$8(2a + 5)$	A1	
4b	$3x(4x - 1)$	A1	
4c	$b^3(b - 1)$	A1	
5a	$-1$	A1	
5b	$2$	A1	
5c	$16$	M1 A1	M1 for $-9 + (-5)^2$
6	$\neq$	A1	
7	$4t + 5c$	A2	Award 1 mark for each correct term.
8a	Expression	A1	
8b	Identity	A1	
8c	Formula	A1	
9	$v = \frac{400}{10 \times 2}$	M1	
	$= 20$	A1	

Q	Answer	Mark	Comment
10a	$S = \frac{D}{T}$	A1	
10b	$S = \frac{750}{1.5}$	M1	
	= 500 mph	A1	

**Progression Step Boundaries**

Mark boundary	Step
0	U
1	3 <sup>rd</sup>
3	4 <sup>th</sup>
7	5 <sup>th</sup>
13	6 <sup>th</sup>
19	7 <sup>th</sup>