

Delta 3

Unit 5 Review (Calculator)

Multiplicative Reasoning

How well did you do:

Multiplicative Reasoning	Score = $\frac{\quad}{50}$	
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<i>Topics/skills which need to be revisited:</i>	<i>Questions from the review</i>	<i>Further Practice from Delta 3</i>
- Understand when two variables are in direct proportion - Use direct proportion property to quickly calculate a missing value - Recognise graphs of directly proportional variables	1a 1b 2	- Learn key point P100 - P111 Q4 - P111 Q1
- From a table of values find an equation connecting the two variables and justify whether they are in direct proportion or not - From a wordy statement, find an equation connecting two variables which are in direct proportion - Use your direct proportion equation to find other values	3 4a 4b	- P119 Q5 - P113 Q4a - P113 Q4b
- Use inverse proportion property to quickly calculate a missing value - Understand when two variables are in inverse proportion - From a wordy statement, find an equation connecting two variables which are in inverse proportion - Use your inverse proportion equation to find other values - From a wordy statement, find an equation connecting two variables where one is directly proportional to the <i>square</i> of the other - Use this (above) equation to find missing values	5a 5b,8 7a 7b,10,12 11a 11b,13	- P114 Q8 - Learn key point P106 - P113 Q7a - P113 Q7bc - P113 Q6a - P113 Q6b
- Calculate the arc length of a sector - Calculate the radius when given the area of a sector - Calculate the area of a sector	6 9 14	- P114 Q3 - P120 Q11 - P114 Q4

- 1 a** Which of these two situations demonstrates direct proportion? Is it i, ii, both or neither ?
- i) the cost of tomatoes at £1.25 per kilogram
 - ii) the cost of hiring a cement mixer costing £18.15 for the first day and £9.10 per day after that.

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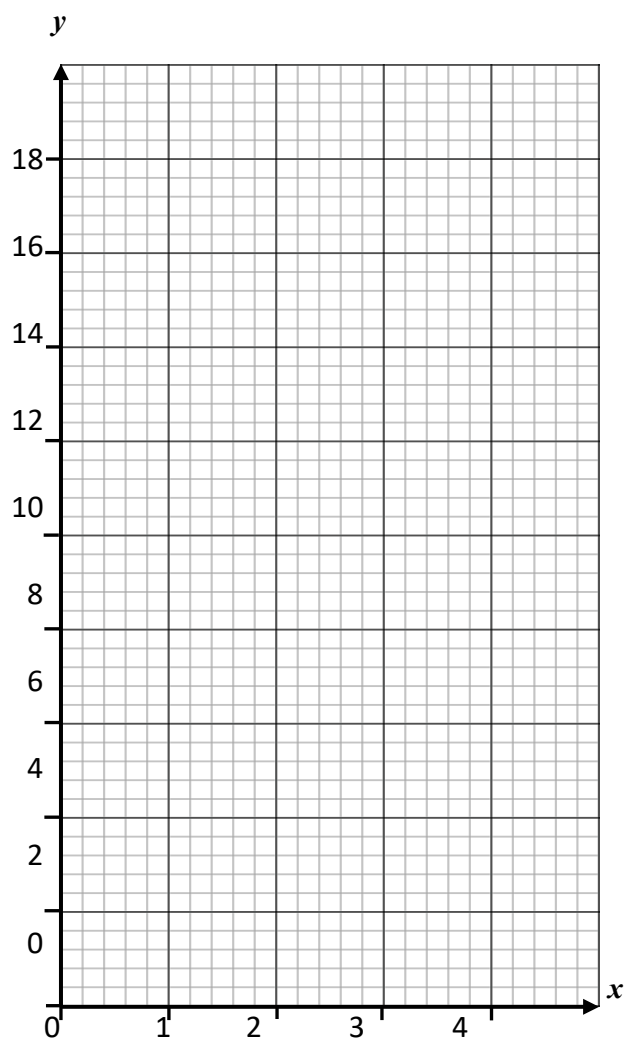
- b** A machine takes 20 seconds to stick labels onto 125 cans.
How many cans will the machine label in 1 hour?

.....

(2 marks)

2 a Plot this data on the grid provided.

x	1	1.5	4	3	2.5
y	4	6	16	12	10



b Are x and y in direct proportion?

.....

c Explain how you know from the graph. Give 2 reasons.

(4 marks)

- 3 a** For each table write down the equation connecting the variables.

x	0	2	4	
y	0	10	20	55

x	2	4	6	10
y	4	16	36	

- b** Complete the tables.

- c** What type of proportionality does the first table show?

- d** For the second table, complete the relationship between x and y .

$$y \propto \dots\dots\dots$$

(6 marks)

- 4** p is directly proportional to q .

When $p = 30$, $q = 4$

- a** Find the equation connecting p and q . Show **all** your working.

- b** Find p when $q = 10$

$$p = \dots\dots\dots$$

(4 marks)



- 5 A library has been given a specific amount of money and can buy 350 hardback books costing £15.75 each.

a How many books costing £10.50 could be bought instead?

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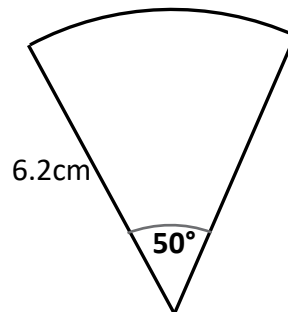
b What type of proportion does this represent?

.....

(2 marks)



- 6 Find the length of the arc of a sector of 50° cut from a circle of radius 6.2 cm. (to 2dp)



..... cm

(3 marks)

- 7 $y \propto \frac{1}{x}$ and $y = 4$ when $x = 3$

a Write a formula connecting x and y . Show **all** your working.

.....

b Find y when $x = 10$

$y =$

(4 marks)

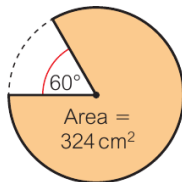
8 For this set of data, is q inversely proportional to p ? Yes or No ?

p	0.8	1.9	2.6
q	4.8	6.9	8.6

.....

(1 mark)

9 Work out the radius of the shaded sector, to 2dp.



Radius =

(3 marks)

10. y is inversely proportional to x .

When $x = 5.4$, $y = 0.6$

a) Work out the value of x when $y = 1.62$ Show **all** your working.

$x =$

(5 marks)

b) Work out the value of y when $x=4$

$y =$

(1 mark)

11 The value of s is proportional to the value of r^2 . When $s = 44.1$ and $r = 3$

a Write a formula connecting s and r^2

$s = \dots\dots\dots$

b What is the value of s when r is 5?

$s = \dots\dots\dots$

(5 marks)

12 y is inversely proportional to x . When $y = 14.4$ $x = 2.5$

a) Copy and complete:

$xy = \dots\dots\dots$

b) What is the value of y when x is 20

$y = \dots\dots\dots$

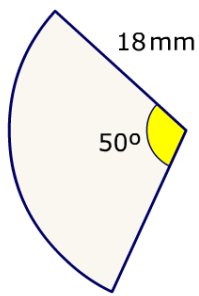
(4 marks)

13 x is proportional to the square of y . When $x = 468$, $y = 6$. Write a formula to connect x and y .

$\dots\dots\dots$

(3 marks)

14. Work out the area of the sector below, to 2 dp:



Area =

(3 marks)

[END of REVIEW]