

You have one week to complete this. What you hand in should be your best work, and you must attempt every question (the only exception being if there are optional topics which don't apply to you).

If you are stuck then please either consult notes or textbooks found on Godalming Online, attend a workshop, or ask your teacher.

You may need to refer to the formula book, found [here](#):

or financial information, found [here](#):

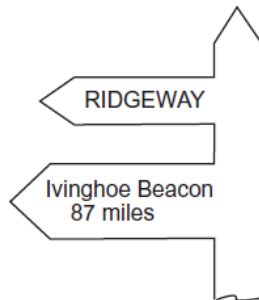


- 1) Estimate how many 16 year-olds there are in the UK
- 2) Kate, Aminda and Amadej all had their 14th birthdays last week.

Kate guesses she has had about 20 million heart beats, so far.

Aminda thinks that estimate is too low, but Amadej thinks it is too high.
What do you think?

- 3) The Ridgeway is a very old British road.



Circle the distance that is approximately equal to 87 miles.

- 139 mm 139 cm 139 m 139 km

[1 mark]

- 4) Kim wants to knit a sleeveless jumper.

A long-sleeved jumper needs 1.5 kilometres of wool.
A sleeveless jumper needs 30% less than a long-sleeved jumper.
Balls of wool cost £3.45 each.
The length of wool in each ball is 160 metres.

Is £25 enough to buy the wool to knit the sleeveless jumper?
You must show your working.

[6 marks]

- 5) (a) Grapes cost £1.86 per kilogram.

Work out the cost of 2.5 kilograms of grapes.

[2 marks]

- (b) Watermelons usually cost £2.60
This price is reduced by 25%

Liam buys a watermelon at the reduced price.

Work out how much money he **saves**.

[2 marks]

- 6) Ben has three sisters and one brother.

The ages, in years, of the five children are shown below.

10 5 17 8 15

- (a) Work out the range of the ages.
- (b) Calculate the mean age.

Ben's mum and dad have another baby.
- (c) What effect will this have on the **range** of the ages of the children?
- (d) What effect will this have on the **mean** of the ages of the children?

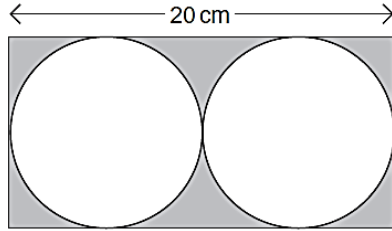
[1 mark]

[2 marks]

[1 mark]

[1 mark]

- 7) Estimate how many seconds you spend in lessons in one term.
- 8) Two identical circles fit inside a rectangle as shown.



Not drawn
accurately

The length of the rectangle is 20 cm

Work out the area of the shaded section.

[6 marks]

- 9) The normal price of a television is £1200
It is reduced to £970

Work out the percentage reduction.
Give your answer to 1 decimal place.

[3 marks]

- 10) A price is **decreased** by 27%
The new price is £1138.80

Work out the original price.

[3 marks]

Homework 1 - Solutions

1) Assumptions: Population of UK – 60,000,000 to 70,000,000 **B1**
 Life expectancy – 75 to 85 years **B1**
 $60,000,000 \div 85 = 705,882$,
 or $70,000,000 \div 75 = 933,333$ **M1**
 Answer should be between 700,000 and 1,000,000 **A1 (4)**

2) Assumptions: Heart beats 50 to 120 times per minute **B1**
 number of heart beats $\times 1,440$ (minutes in a day) $\times 365$
 (days in a year) $\times 14$ (years) = 370 million to 880 million **M1, A1 (3)**

3)

139 km	B1
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(1)

1.5 \times 1000 or 1500 (m)	1.6 \div 100 or 0.16 (km)	M1	1.5 \times 0.7 or 1.05	oe
their 1500 \times 0.7 or 1050 (m)	1.5 \times 0.7 or 1.05 (km)	M1	their 1.05 \times 1000 or 1050 (m)	
their 1050 \div 160 or [6.5, 6.6]	their 1.05 \div 0.16 or [6.5, 6.6]	M1		
their 7 \times 3.45		M1	their 7 is their [6.5, 6.6] rounded up	
£24.15		A1		
their £24.15 and correct conclusion for their £24.15		Q1ft	Strand iii M4 awarded and 'correct' decision	

(6)

1.86 \times 2.5 or 1.86 + 1.86 + 0.93	M1	
4.65	A1	

2.6(0) \times 0.25 or 2.6(0) \div 4	M1	
65p or £0.65	A1	65 or 0.65 is M1A0 (4)

12	B1	
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(10 + 5 + 17 + 8 + 15) + 5	M1	oe Allow one error in the addition
11	A1	SC1 for 43 or 41.4

Increases	B1	
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Decreases	B1	(5)
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7) Assumptions: 10 to 14 weeks in one term **B1**
 2 to 4 lessons per day (10 to 20 lessons per week) **B1**
 90 minutes per lesson **B1**

OR
 $10 \text{ lessons} \times 10 \text{ weeks} \times 90 \text{ minutes} \times 60 \text{ seconds} = 540,000 \text{ seconds}$
 $20 \text{ lessons} \times 14 \text{ weeks} \times 90 \text{ minutes} \times 60 \text{ seconds} = 1,512,000 \text{ seconds}$ **M1**

Answer should be between 500,000 and 1,500,000 (to the nearest 100,000)

A1 (5)

8)

diameter = 10 (cm) seen or implied or width of rectangle = 10 (cm) seen or implied	B1	May be on diagram
radius = 5 (cm) seen or implied	B1dep	May be on diagram
10×10 or 100 or 20×10 or 200	M1	oe
$\pi \times 5^2$ or 25π or [78.5, 78.6] or 79 or $2 \times \pi \times 5^2$ or 50π or [157, 157.2] or 158	M1	oe
100 – their 25π or [21.4, 21.5] or $200 - 2 \times \text{their } 25\pi$	M1dep	oe Dependent on M1 M1
[42.8, 43] or $200 - 50\pi$ or $50(4 - \pi)$ or 42	A1	oe

(6)

9)

$1200 - 970$ or 230	M1	
$\frac{\text{their } 230}{1200} \times 100$ or 19.1(6...)	M1dep	
19.2	A1	SC2 for an answer of 80.8 SC1 Any answer with at least 2 dp seen and correctly rounded to 1 dp

(5)

10)

0.73 or 73(%) or $\frac{73}{100}$ or $\frac{100}{73}$ seen	B1	
$1138.8(0) \div 0.73$	M1	oe
1560	A1	SC2 896.69

(3)

TOTAL MARKS: 40