GCSE STATISTICS: TERM 10.2 MIXED TOPIC TASKS

Week 1.1

<table>
<tr>
<td>Which of these is an advantage of taking a census rather than a sample?

Time consuming
More accurate</td>
<td>Calculate the number required for each strata for a sample size of 50

<table><tr><th>red</th><th>yellow</th><th>blue</th><th>green</th></tr><tr><td>141</td><td>316</td><td>64</td><td>207</td></tr></table></td>
<td>There are n birds in an aviary
Olaf catches 20 birds and tags them, then releases them back
After 2 days, Olaf catches another 20 birds and find 7 of them are tagged.
Estimate the number of birds in the aviary</td>
</tr>
<tr>
<td>Give an example of a sample frame that can be used to identify all of the employees at Cadbury's Bournville factory</td>
<td>Calculate the regular interval for a systematic sample of size 20 from an estimated population of 1550</td>
<td>What is wrong with this question?

How many hours of sleep do you get per night?

☐ 1 to 4 hours ☐ 4 to 8 hours ☐ More than 8 hours</td>
</tr>
<tr>
<td>Number these random sample steps 1-4

Choose 30 random numbers using a RNG
Ignore repeats and numbers > 125
Number all of the lambs from 1-125
Choose the corresponding lambs</td>
<td>What type of sampling method is this?

Jennifer asks all of her friends at Brownies who their favourite charter is from Harry Potter</td>
<td>Which of these pieces of data appears to be an outlier

195 2050 314 294 308</td>
</tr>
</table>

Score ___ / 9

GCSE STATISTICS: TERM 10.2 MIXED TOPIC TASKS

Week 1.2

Write a definition for the mode of a data set	Write a definition for the median of a data set	Write a definition for the mean of a data set
Calculate the mode for the following data set 5, 7, 7, 7, 8, 8, 9, 11, 15, 16, 16, 18, 20	Calculate the median for the following data set 51, 56, 59, 61, 64, 68, 68, 68, 70, 70	Calculate the mean for the following data set 2.5, 2.9, 3.0, 3.0, 3.0, 3.1, 3.8
Calculate the mode for the following data set 28, 34, 27, 22, 36, 27, 29, 31, 28	Calculate the median for the following data set 5.1, 4.1, 3.8, 5.2, 5.9, 4.3, 3.6, 4.5, 4.0	Calculate the mean for the following data set 206, 227, 294, 251, 204, 265, 231

Score ___ / 9

GCSE STATISTICS: TERM 10.2 MIXED TOPIC TASKS

Week 2.1

Calculate the mode for the following data set

16, 32, 27, 26, 29, 25, 18, 20, 16, 27

Calculate the median for the following data set

117, 106, 159, 138, 164, 113, 127

Calculate the mean for the following data set

5.4, 3.1, 1.7, 2.8, 6.9, 5.1, 4.0, 2.8, 3.5

Calculate the mode for the following data set

x	12	13	14	15	16
freq	12	15	19	17	15

Calculate the median for the following data set

x	1	2	3	4	5
freq	7	5	10	12	11

Calculate the mean for the following data set

x	70	80	90	100	110
freq	6	1	4	8	5

Calculate the mode for the following data set

x	1	2	3	4	5
freq	5	4	3	2	1

Calculate the median for the following data set

x	74	75	76	77	78
freq	18	16	15	19	14

Calculate the mean for the following data set

x	1.5	2.0	2.5	3.0	1.0
freq	27	29	35	32	36

Score ___ / 9

GCSE STATISTICS: TERM 10.2 MIXED TOPIC TASKS

Week 2.2

Calculate the mode for the following data set

15, 16, 18, 10, 12, 15, 14, 19, 15, 16, 10

Calculate the median for the following data set

2.1, 1.5, 2.9, 2.8, 2.1, 1.8, 1.7, 2.5, 2.4, 1.1

Calculate the mean for the following data set

6, 7, 2, 8, 5, 9, 1, 5, 3, 0, 8, 0, 7, 5, 2

Calculate the mode for the following data set

x	0	1	2	3	4
freq	20	14	19	15	22

Calculate the median for the following data set

x	18	19	20	21	22
freq	7	4	5	8	6

Calculate the mean for the following data set

x	2.1	2.2	2.3	2.4	2.5
freq	11	15	18	12	16

State the modal class for the following data set

x	1-3	4-6	7-9	10-12
freq	15	13	16	13

State the median class for the following data set

x	0-10	10-20	20-30	30-40
freq	15	11	18	19

*EXT: Estimate the median

Calculate an estimate for the mean for the following data set

x	0-5	5-10	10-15	15-20
freq	8	4	5	6

Score ___ / 9

GCSE STATISTICS: TERM 10.2 MIXED TOPIC TASKS

Week 3.1

Calculate the mode for the following data set

x	12	13	14	15	16
freq	6	8	5	2	9

Calculate the median for the following data set

x	0.1	0.2	0.3	0.4	0.5
freq	8	15	2	7	9

Calculate the mean for the following data set

x	20	30	40	50	60
freq	12	15	18	14	16

State the modal class for the following data set

x	10-20	20-30	30-40	40-50
freq	7	6	5	9

State the median class for the following data set

x	0-2	2-4	4-6	6-8
freq	12	17	15	16

*EXT: Estimate the median

Calculate an estimate for the mean for the following data set

x	5-10	10-15	15-20	20-25
freq	8	11	10	9

Hope records the type of after school class each of her friends go to each week

Dance, Gym, Dance, Football, Dance, Football, Football, Swimming, Dance, Gym, Football

Which average would be best describe the average after school class each of her friends go to each week?

☐Mean ☐Median ☐Mode

The number of flights taken by flight attendants per week is recorded

18, 26, 13, 19, 27, 51, 7, 15, 29

Which average should the company use to share the average number of flights their attendants take each week?

☐Mean ☐Median ☐Mode

A teacher record how many pieces of homework are handed in late each lesson

4, 9, 12, 5, 6, 8, 3

Which average would be best to help her future planning with regards to homework?

☐Mean ☐Median ☐Mode

Score ___ / 9

GCSE STATISTICS: TERM 10.2 MIXED TOPIC TASKS

Week 3.2

State the modal class for the following data set

x	0-10	10-20	20-30	30-40
freq	15	16	18	14

State the median class for the following data set

x	0.0-0.1	0.1-0.2	0.2-0.3	0.3-0.4
freq	74	58	64	58

*EXT: Estimate the median

Calculate an estimate for the mean for the following data set

x	2-4	4-6	6-8	8-10
freq	6	5	2	8

A cashier records how many items customers bring to the '15 items or less' till

9, 10, 15, 8, 9, 1, 3, 6, 5, 7, 12, 11, 15, 18, 12, 4

Which average would be best to help her future planning with regards to homework?

☐Mean ☐Median ☐Mode

David records the colour of pen he uses to mark students work each day

Red, Green, Red, Red, Red, Green, Blue, Red, Red, Green, Purple, Green, Red, Green, Blue, Red, Red

Which average would be best describe the average colour David uses for his marking?

☐Mean ☐Median ☐Mode

The weights of dogs at a dog show are recorded below

2.6kg, 4.8kg, 6.2kg, 1.7kg, 5.5kg, 9.2kg, 86.4kg

12.3kg, 4.7kg, 6.3kg, 5.2kg, 10.9kg, 6.8kg, 7.3kg

☐Mean ☐Median ☐Mode

Calculate the weighted mean for the following data

x	Result	Weight
A	12	0.25
B	65	0.25
C	18	0.5

State the formula for the weighted mean

Calculate the weighted mean for the following data

x	Points	Weight
Red	315	$\frac{1}{2}$
Blue	126	$\frac{1}{6}$
Green	142	$\frac{1}{3}$

Score ___ / 9

GCSE STATISTICS: TERM 10.2 MIXED TOPIC TASKS

Week 4.1

A vet records how many patients she treats each day who's owners to not have pet insurance

0, 1, 0, 1, 2, 4, 3, 2, 1, 0, 5, 2, 3, 0, 12, 3

Which average would be best to report on her website for customers without insurance?

☐Mean ☐Median ☐Mode

Elsie records the time she spends waiting for the bus each morning. These times (in mins) are listed below

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

What is the best average for Elis to use when complaining to the bus company about the length of time she spends waiting for her bus?

☐Mean ☐Median ☐Mode

The names of babies born on the sunflower ward in the last week are recorded for both male and female babies

What average would be best to use to report the average name for babies born in the sunflower ward?

☐Mean ☐Median ☐Mode

Calculate the weighted mean for the following data

X	Rating	Weight
Light	8.5	4
Exposure	5.5	1
Balance	3.4	3
Fade	6.2	2

State the formula for the weighted mean

Calculate the weighted mean for the following data

X	Points	Weight
Before	35	0.2
During	19	0.6
After	70	0.2

The mean of a set of data was calculated to be 2.5cm.

It was then discovered that all of the measurements were measured 0.7cm too short.

What is the true mean of the lengths?

It is known that the mean score achieved by 27 students on a test was 28.3 out of 40.

Alice was away when the test was taken and scored 30/40 on her test the next day.

How will this affect the mean score for the class?

☐Increase ☐Decrease ☐No Change

The mean temperature in degrees Celsius for May was found to be 16°C

Using the conversion formula $(x°C \times \frac{9}{5}) + 32 = y°F$

Calculate the mean temperature for May in degrees Fahrenheit

Score ___ / 9

GCSE STATISTICS: TERM 10.2 MIXED TOPIC TASKS

Week 4.2

Calculate the weighted mean for the following data

x	Score	Weight
Speed	0.9	60%
Height	0.6	30%
Weight	0.8	10%

State the formula for the weighted mean

Calculate the weighted mean for the following data

x	Points	Weight
Height	212	0.3
Weight	107	0.2
Circumference	72	0.5

The mean of a set of data was calculated to be 400g

It was then discovered that all of the measurements were measured 20g too heavy.

What is the true mean of the weights?

It is known that the mean time taken to complete a puzzle by the residents in a care home was 42mins.

A new resident, Joe, joined today and he took 45mins to complete the puzzle.

How will this affect the mean score for the patients?

☐Increase ☐Decrease ☐No Change

The mean of a data set (x) was found to be 23.7

Use the formula $y = 5x - 0.2$ to find the mean of the data set (y)

Calculate the range of the data set below

18.6	12.4	16.1	19.0	111.4	15.8	16.2
16.3	10.8	16.9	14.7	15.2	10.2	11.8
19.4	15.9	16.4	17.5	18.4	11.2	10.3

Define the term 'Range'

Calculate the range of the data set below

x	6	7	8	9	10	11	12	13
freq	18	20	21	18	16	19	15	12

Score ___ / 9

GCSE STATISTICS: TERM 10.2 MIXED TOPIC TASKS

Week 5.1

The mean length of a phone call from a woman to her mother was calculated to be 52mins and 8secs This length of time is calculated including the time it takes for the mother to answer the call which is on average 32 seconds. Calculate the mean length of the class once the mother picks up the phone	It is known that the mean volume of drink poured by Eddie is 145ml When Glenn takes over the shift, his first glass contains 140ml How will this affect the mean volume of drink poured per glass overall? ☐Increase ☐Decrease ☐No Change	The mean of a data set (x) was found to be 11.01 Use the formula $y = 2x + 3.1$ to calculate the new mean
Calculate the range of the data set below 94 93 26 65 31 15 84 75 52 65 11 84 25 32 65 94 78 76 52 51 65 80 40 45 46 32 87 61 12 15 22	Define the term 'Range'	Calculate the range of the data set below x: 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 freq: 9 5 8 4 5 0 6 3
Find the upper quartile of the data below: 5 9 12 14 14 18 20 23 26 29 29	State the formula for finding the position of the first quartile:	Calculate the value of the IQR using the summarised data given LQ: 23.6 Median: 38.4 UQ: 41.9

Score ___ / 9

GCSE STATISTICS: TERM 10.2 MIXED TOPIC TASKS

Week 5.2

Calculate the range of the data set below 87 82 80 89 86 83 74 80 85 88 89 86 86 84 81 83 80 76 90 82 86 87 89 86 85 83 81	Define the term 'Range'	Calculate the range of the data set below x: 5 6 7 8 9 10 11 12 freq: 8 5 6 9 5 4 7 3
Find the lower quartile of the data below: 7.5 7.9 8.0 8.1 8.2 8.3 8.5 8.5 8.9	State the formula for finding the position of the upper quartile:	Calculate the value of the IQR using the summarised data given LQ: 426 Median: 437 UQ: 491
If the variance is 13.2, what would be the standard deviation?	State a formula for the standard deviation	Use the data summarized below to calculate the variance $\Sigma(x - \bar{x})^2 = 128$ $n = 17$

Score ___ / 9

GCSE STATISTICS: TERM 10.2 MIXED TOPIC TASKS

Week 6.1

Find the upper quartile of the data below: 12 15 15 16 18 19 20 22 22 23 25	State the formula for finding the position of the lower quartile:	Calculate the value of the IQR using the summarised data given LQ: 25.4 Median: 32.1 UQ: 35.7
If the standard deviation is 5.62 what would the variance be?	State a formula for the variance	Use the data summarized below to calculate the standard deviation $\Sigma x = 12.7$ $\Sigma x^2 = 141.4$ $n = 14$
For the following data set calculate Σx 15, 17, 42, 32, 26, 56, 18, 15, 14, 23, 62, 28, 51	For the following data set calculate Σx^2 4.7, 2.5, 3.4, 1.6, 6.2, 2.5, 3.5, 3.4, 3.1, 2.8, 1.5	For the following data set calculate Σfx x: 1.0 1.1 1.2 1.3 1.4 1.5 f: 16 18 15 12 14 15

Score ___ / 9

GCSE STATISTICS: TERM 10.2 MIXED TOPIC TASKS

Week 6.2

<table>
<tr>
<td>If the variance is calculated to be 1.27, what would the value of the standard deviation be?</td>
<td>State a formula for the standard deviation</td>
<td>Use the data summarized below to calculate the standard deviation

$\Sigma(x - \bar{x})^2 = 214$ $n = 50$</td>
</tr>
<tr>
<td>For the following data set calculate Σx

84, 85, 81, 82, 86, 90, 87, 85, 82, 83, 91</td>
<td>For the following data set calculate Σx^2

8, 7, 5, 6, 3, 5, 2, 9, 4, 1, 5, 2, 3, 5, 6, 5, 9, 5, 7, 4</td>
<td>For the following data set calculate Σfx

<table>
<tr><td>x</td><td>0</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td></tr>
<tr><td>f</td><td>5</td><td>6</td><td>5</td><td>4</td><td>7</td><td>4</td><td>8</td><td>1</td></tr>
</table>
</td>
</tr>
<tr>
<td>Calculate the standard deviation for the following data set:
84, 85, 81, 82, 86, 90, 87, 85, 82, 83, 91</td>
<td>Calculate the variance for the following data set:

8, 7, 5, 6, 3, 5, 2, 9, 4, 1, 5, 2, 3, 5, 6, 5, 9, 5, 7, 4</td>
<td>Calculate the standard deviation for the following data set

<table>
<tr><td>x</td><td>0</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td></tr>
<tr><td>f</td><td>5</td><td>6</td><td>5</td><td>4</td><td>7</td><td>4</td><td>8</td><td>1</td></tr>
</table>
</td>
</tr>
</table>

Score ___ / 9

GCSE STATISTICS: TERM 10.2 MIXED TOPIC TASKS

Week 7.1

<table>
<tr>
<td>Write a definition for the mode:</td>
<td>Calculate the mode for the following data set
8, 15, 16, 12, 14, 12, 10, 9, 15, 12, 15, 8, 10, 7, 12, 9, 12, 8, 11, 12, 16, 18</td>
<td>A receptionist takes the details of patients as the book appointments at a clinic.
One of the questions she asks is would they prefer a male or female doctor

Which average would be best to report back to the agency when requesting doctors for clinic?

☐Mean ☐Median ☐Mode</td>
</tr>
<tr>
<td>Write a definition for the median:</td>
<td>Calculate the median for the following data set
<table>
<tr><td>x</td><td>0.0</td><td>0.1</td><td>0.2</td><td>0.3</td><td>0.4</td><td>0.5</td></tr>
<tr><td>freq</td><td>8</td><td>2</td><td>6</td><td>3</td><td>7</td><td>6</td></tr>
</table>
</td>
<td>Calculate the weighted mean for the following data
<table>
<tr><th>x</th><th>Score</th><th>Weight</th></tr>
<tr><td>Practical</td><td>84/100</td><td>45%</td></tr>
<tr><td>Coursework</td><td>16/20</td><td>35%</td></tr>
<tr><td>Exam</td><td>24/80</td><td>20%</td></tr>
</table>
</td>
</tr>
<tr>
<td>Write a formula for the mean:</td>
<td>Calculate an estimate for the mean for the following data set
<table>
<tr><td>x</td><td>0-10</td><td>10-20</td><td>20-30</td><td>30-40</td></tr>
<tr><td>freq</td><td>4</td><td>8</td><td>5</td><td>2</td></tr>
</table>
</td>
<td>The mean of a set of data was calculated to be 1.8kg

It was then discovered that the scales were not correct and all of the weights were 0.2kg too heavy

What is the true mean of the weights?</td>
</tr>
</table>

Score ___ / 9

GCSE STATISTICS: TERM 10.2 MIXED TOPIC TASKS

Week 7.2

Calculate the range of the data set below

x	5	6	7	8	9	10	11	12
freq	8	5	6	9	5	4	7	3

Find the lower quartile of the data below:

7.5 7.9 8.0 8.1 8.2 8.3 8.5 8.5 8.9

Calculate the value of the IQR using the summarised data given

LQ: 426 Median: 437 UQ: 491

If the variance is calculated to be 1.27, what would the value of the standard deviation be?

Use the data summarized below to calculate the standard deviation

$\Sigma x = 12.7$ $\Sigma x^2 = 141.4$ $n = 14$

For the following data set calculate Σx

84, 85, 81, 82, 86, 90, 87, 85, 82, 83, 91

Calculate the standard deviation for the following data set

x	0	1	2	3	4	5	6	7
f	5	6	5	4	7	4	8	1

Use the data summarized below to calculate the standard deviation

$\Sigma(x - \bar{x})^2 = 214$ $n = 50$

Calculate the standard deviation for the following data set:

84, 85, 81, 82, 86, 90, 87, 85, 82, 83, 91

Score ___ / 9