HIGHER

3.8 Weighted and Geometric Mean: 1-hour Pack

EDEXCEL 1ST0 · Calculator allowed · about 60 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 Work out the geometric mean of the 3 numbers 125, 25, 5.

(Total for Question 1 is 3 marks)

2 Kofi's final mark is a weighted mean of 2 components.

Component	Weight	Mark
homework	50%	52
the practical test	50%	88

Work out the final mark.

(Total for Question 2 is 3 marks)

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3 A shop sells three products. The table shows the quantity sold and the price per unit, in pounds.

Product	Quantity sold	Price per unit (pounds)
flour	9 kg	3.05
rice	2 kg	1.83
bananas	2 kg	2.20

Work out the mean price per unit sold, weighting each price by the quantity. Give your answer to 2 decimal places.

(Total for Question 3 is 3 marks)

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4 The value of an investment increased by 96% in year 1 and decreased by 19% in year 2. Use the geometric mean of the two yearly growth factors to work out the mean percentage change per year.

(Total for Question 4 is 4 marks)

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5 Isla's final mark is a weighted mean of 2 components.

Component	Weight	Mark
the project	50%	82
the written paper	50%	49

Work out the final mark.

(Total for Question 5 is 3 marks)

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6 Grace's final mark is a weighted mean of 2 components.

Component	Weight	Mark
the oral exam	30%	79
the project	70%	74

Work out the final mark.

(Total for Question 6 is 3 marks)

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7 The number of followers of an account increased by 44% in year 1 and increased by 96% in year 2. Use the geometric mean of the two yearly growth factors to work out the mean percentage change per year.

(Total for Question 7 is 4 marks)

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8 Hamza's final mark is a weighted mean of 2 components.

Component	Weight	Mark
homework	30%	74
the oral exam	70%	85

Work out the final mark.

(Total for Question 8 is 3 marks)

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9 Dev's final mark is a weighted mean of 2 components.

Component	Weight	Mark
the oral exam	35%	64
homework	65%	92

Work out the final mark.

(Total for Question 9 is 3 marks)

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10 The number of followers of an account decreased by 19% in year 1 and increased by 21% in year 2. Use the geometric mean of the two yearly growth factors to work out the mean percentage change per year.

(Total for Question 10 is 4 marks)

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11 Ella's final mark is a weighted mean of 2 components.

Component	Weight	Mark
the written paper	35%	73
the practical test	65%	68

Work out the final mark. Give your answer to 1 decimal place.

(Total for Question 11 is 3 marks)

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12 Carys sits three assessments weighted 30%, 30% and 40%. The first two marks are 55 and 63. Carys needs a weighted mean of 65. What mark is needed in the third assessment?

(Total for Question 12 is 3 marks)

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13 Work out the geometric mean of the 3 numbers 125, 5, 25.

(Total for Question 13 is 3 marks)

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14 A shop sells three products. The table shows the quantity sold and the price per unit, in pounds.

Product	Quantity sold	Price per unit (pounds)
apples	8 kg	1.82
flour	5 kg	2.99
rice	4 kg	1.88

Work out the mean price per unit sold, weighting each price by the quantity. Give your answer to 2 decimal places.

(Total for Question 14 is 3 marks)

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15 Owen's final mark is a weighted mean of 2 components.

Component	Weight	Mark
coursework	50%	91
the project	50%	79

Work out the final mark.

(Total for Question 15 is 3 marks)

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16 Work out the geometric mean of the 4 numbers 16, 64, 64, 256.

(Total for Question 16 is 3 marks)

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17 Grace's final mark is a weighted mean of 2 components.

Component	Weight	Mark
the practical test	40%	49
the project	60%	62

Work out the final mark.

(Total for Question 17 is 3 marks)

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18 Mohammed's final mark is a weighted mean of 2 components.

Component	Weight	Mark
the written paper	50%	87
the oral exam	50%	77

Work out the final mark.

(Total for Question 18 is 3 marks)

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Mark scheme · 3.8 Weighted and Geometric Mean: 1-hour Pack

Question 1

multiplies the 3 numbers (product = 15625)	**M1**
takes the cube root	**M1**
25 cao	**A1**

Answer: 25

Question 2

each mark multiplied by its weight	**M1**
weighted marks summed and divided by the total weight (or weights as fractions of 1)	**M1**
70 cao	**A1**

Answer: 70

Question 3

each price multiplied by its quantity	**M1**
total cost divided by total quantity (13)	**M1**
2.73 cao	**A1**

Answer: 2.73

Question 4

growth factors 1.96 and 0.81	**B1**
square root of the product of the factors	**M1**
1.26	**A1**
26% increase cao	**A1**

Answer: 26% increase per year

Question 5

each mark multiplied by its weight	**M1**
weighted marks summed and divided by the total weight (or weights as fractions of 1)	**M1**
65.5 cao	**A1**

Answer: 65.5

Question 6

each mark multiplied by its weight	**M1**
weighted marks summed and divided by the total weight (or weights as fractions of 1)	**M1**
75.5 cao	**A1**

Answer: 75.5

Question 7

growth factors 1.44 and 1.96	**B1**
square root of the product of the factors	**M1**
1.68	**A1**
68% increase cao	**A1**

Answer: 68% increase per year

Question 8

each mark multiplied by its weight	**M1**
weighted marks summed and divided by the total weight (or weights as fractions of 1)	**M1**
81.7 cao	**A1**

Answer: 81.7

Question 9

each mark multiplied by its weight	**M1**
weighted marks summed and divided by the total weight (or weights as fractions of 1)	**M1**
82.2 cao	**A1**

Answer: 82.2

Question 10

growth factors 0.81 and 1.21	**B1**
square root of the product of the factors	**M1**
0.99	**A1**
1% decrease cao	**A1**

Answer: 1% decrease per year

Question 11

each mark multiplied by its weight	**M1**
weighted marks summed and divided by the total weight (or weights as fractions of 1)	**M1**
69.8 cao	**A1**

Answer: 69.8

Question 12

30 x 55 + 30 x 63 + 40 x m set up	**M1**
equals 65 x 100	**M1**
74 cao	**A1**

Answer: 74

Question 13

multiplies the 3 numbers (product = 15625)	**M1**
takes the cube root	**M1**
25 cao	**A1**

Answer: 25

Question 14

each price multiplied by its quantity	**M1**
total cost divided by total quantity (17)	**M1**
2.18 cao	**A1**

Answer: 2.18

Question 15

each mark multiplied by its weight	**M1**
weighted marks summed and divided by the total weight (or weights as fractions of 1)	**M1**
85 cao	**A1**

Answer: 85

Question 16

multiplies the 4 numbers (product = 16777216)	**M1**
takes the fourth root	**M1**
64 cao	**A1**

Answer: 64

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Question 17

each mark multiplied by its weight	**M1**
weighted marks summed and divided by the total weight (or weights as fractions of 1)	**M1**
56.8 cao	**A1**

Answer: 56.8

Question 18

each mark multiplied by its weight	**M1**
weighted marks summed and divided by the total weight (or weights as fractions of 1)	**M1**
82 cao	**A1**

Answer: 82

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