
GCSE Mathematics

Averages from Frequency Tables

Mark Scheme - Foundation Tier | Grades 4-5

M = method mark, A = accuracy mark (dependent on the preceding M mark), B = independent mark.

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Edexcel-style questions

Q1 Grade 4 Edexcel style

Total: 1

Part	Mark scheme	Marks
(a)	mode = 1	B1

Q2 Grade 4 Edexcel style

Total: 3

Part	Mark scheme	Marks
(a)	total frequency = $5 + 12 + 7 + 3 = 27$	M1
(a)	the 14th value lies in the '1 pet' group (cumulative frequency 17)	M1
(a)	median = 1	A1

Q3 Grade 5 Edexcel style

Total: 3

Part	Mark scheme	Marks
(a)	$\Sigma fx = 0 + 8 + 12 + 9 + 4 = 33$	M1
(a)	$\Sigma f = 4 + 8 + 6 + 3 + 1 = 22$	M1
(a)	mean = $33 \div 22 = 1.5$	A1

Q4 Grade 5 Edexcel style

Total: 4

Part	Mark scheme	Marks
(a)	$\Sigma fx = 0(4) + 1(6) + 2(a) + 3(3) = 15 + 2a$	M1
(a)	$\Sigma f = 4 + 6 + a + 3 = 13 + a$	M1
(a)	$(15 + 2a) \div (13 + a) = 1.5$, so $15 + 2a = 1.5(13 + a)$	M1
(a)	$a = 9$	A1

Q5 Grade 5 Edexcel style

Total: 4

Part	Mark scheme	Marks
(a)	mean A = $(0 \times 10 + 1 \times 6 + 2 \times 3 + 3 \times 1) \div 20 = 15 \div 20 = 0.75$	M1
(a)	mean B = $(0 \times 6 + 1 \times 8 + 2 \times 4 + 3 \times 2) \div 20 = 22 \div 20 = 1.1$	M1
(a)	$0.75 < 1.1$	M1
(a)	Class A has fewer absences on average	A1

AQA-style questions

Q6 Grade 4 AQA style**Total: 1**

Part	Mark scheme	Marks
(a)	mode = 1	B1

Q7 Grade 4 AQA style**Total: 3**

Part	Mark scheme	Marks
(a)	total frequency = $6 + 10 + 8 + 4 + 2 = 30$	M1
(a)	the 15th and 16th values both lie in the '1 sibling' group (cumulative frequency 16)	M1
(a)	median = 1	A1

Q8 Grade 5 AQA style**Total: 3**

Part	Mark scheme	Marks
(a)	$\Sigma fx = 5 + 14 + 12 + 12 + 5 = 48$	M1
(a)	$\Sigma f = 5 + 7 + 4 + 3 + 1 = 20$	M1
(a)	mean = $48 \div 20 = 2.4$	A1

Q9 Grade 5 AQA style**Total: 4**

Part	Mark scheme	Marks
(a)	$\Sigma fx = 0(5) + 1(6) + 2(a) + 3(2) = 12 + 2a$	M1
(a)	$\Sigma f = 5 + 6 + a + 2 = 13 + a$	M1
(a)	$(12 + 2a) \div (13 + a) = 1.3$, so $12 + 2a = 1.3(13 + a)$	M1
(a)	$a = 7$	A1

Q10 Grade 5 AQA style**Total: 4**

Part	Mark scheme	Marks
(a)	mean A = $(0 \times 8 + 1 \times 7 + 2 \times 3 + 3 \times 2) \div 20 = 19 \div 20 = 0.95$	M1
(a)	mean B = $(0 \times 5 + 1 \times 6 + 2 \times 6 + 3 \times 3) \div 20 = 27 \div 20 = 1.35$	M1
(a)	$0.95 < 1.35$	M1
(a)	Shop A has fewer complaints on average	A1

OCR-style questions

Q11 Grade 4 OCR style**Total: 1**

Part	Mark scheme	Marks
(a)	mode = 6	B1

Q12 Grade 4 OCR style**Total: 3**

Part	Mark scheme	Marks
(a)	total frequency = $3 + 9 + 11 + 6 + 2 = 31$	M1
(a)	the 16th value lies in the 'size 6' group (cumulative frequency 23)	M1
(a)	median = 6	A1

Q13 Grade 5 OCR style**Total: 3**

Part	Mark scheme	Marks
(a)	$\Sigma fx = 0 + 10 + 6 + 3 = 19$	M1
(a)	$\Sigma f = 6 + 10 + 3 + 1 = 20$	M1
(a)	mean = $19 \div 20 = 0.95$	A1

Q14 Grade 5 OCR style**Total: 4**

Part	Mark scheme	Marks
(a)	$\Sigma fx = 0(3) + 1(5) + 2(a) + 3(1) = 8 + 2a$	M1
(a)	$\Sigma f = 3 + 5 + a + 1 = 9 + a$	M1
(a)	$(8 + 2a) \div (9 + a) = 1.6$, so $8 + 2a = 1.6(9 + a)$	M1
(a)	$a = 16$	A1

Q15 Grade 5 OCR style**Total: 4**

Part	Mark scheme	Marks
(a)	mean A = $(0 \times 3 + 1 \times 7 + 2 \times 6 + 3 \times 4) \div 20 = 31 \div 20 = 1.55$	M1
(a)	mean B = $(0 \times 5 + 1 \times 8 + 2 \times 5 + 3 \times 2) \div 20 = 24 \div 20 = 1.2$	M1
(a)	$1.55 > 1.2$	M1
(a)	Team A scores more goals on average	A1

Teachably-style questions

Q16 Grade 4 Teachably style

Total: 1

Part	Mark scheme	Marks
(a)	mode = 1	B1

Q17 Grade 4 Teachably style

Total: 3

Part	Mark scheme	Marks
(a)	total frequency = $4 + 15 + 9 + 2 = 30$	M1
(a)	the 15th and 16th values both lie in the '1 car' group (cumulative frequency 19)	M1
(a)	median = 1	A1

Q18 Grade 5 Teachably style

Total: 3

Part	Mark scheme	Marks
(a)	$\Sigma fx = 0 + 7 + 6 + 3 + 4 = 20$	M1
(a)	$\Sigma f = 8 + 7 + 3 + 1 + 1 = 20$	M1
(a)	mean = $20 \div 20 = 1$	A1

Q19 Grade 5 Teachably style

Total: 4

Part	Mark scheme	Marks
(a)	$\Sigma fx = 0(3) + 1(8) + 2(a) + 3(2) = 14 + 2a$	M1
(a)	$\Sigma f = 3 + 8 + a + 2 = 13 + a$	M1
(a)	$(14 + 2a) \div (13 + a) = 1.4$, so $14 + 2a = 1.4(13 + a)$	M1
(a)	$a = 7$	A1

Q20 Grade 5 Teachably style

Total: 4

Part	Mark scheme	Marks
(a)	mean A = $(0 \times 9 + 1 \times 6 + 2 \times 4 + 3 \times 1) \div 20 = 17 \div 20 = 0.85$	M1
(a)	mean B = $(0 \times 6 + 1 \times 7 + 2 \times 5 + 3 \times 2) \div 20 = 23 \div 20 = 1.15$	M1
(a)	$0.85 < 1.15$	M1
(a)	Machine A has fewer defects on average	A1

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