FOUNDATION

1.13 Pictograms: 30-minute Pack

EDEXCEL 1MA1 · Calculator allowed · about 30 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 A survey asked pupils in Year 7 to name their favourite fruit. The pictogram shows the results.

Favourite fruit of Year 7 pupils

Apple	7
Banana	5
Orange	3
Grape	1

Key: = 1 pupil

(a) Write down the number of pupils whose favourite fruit is grape. **(1)**

.....

(b) Write down the modal fruit (the fruit chosen by the most pupils). **(1)**

.....

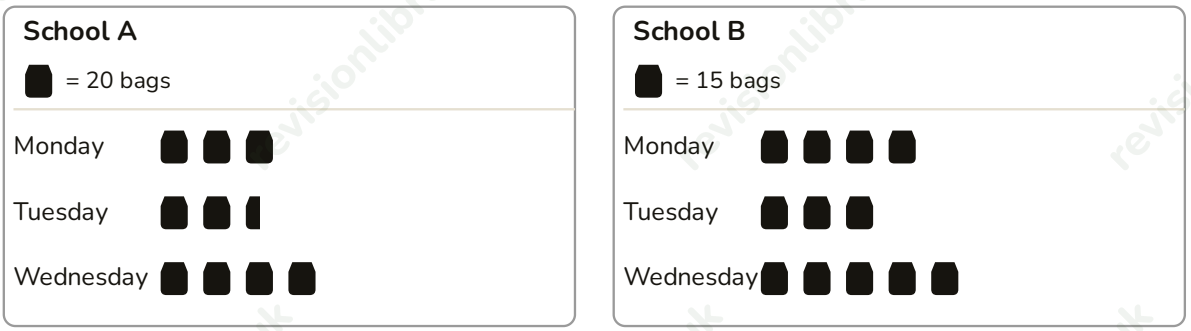
(c) Work out the total number of pupils who took part in the survey. **(2)**

.....

(Total for Question 1 is 4 marks)

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2 Two schools collected recycling bags over three days. The pictograms below use different keys.



(a) Work out the total number of bags collected by School A over the three days. **(2)**

.....

(b) Work out the total number of bags collected by School B over the three days. **(2)**

.....

(c) State, with a reason, which school collected more bags of recycling in total. **(2)**

(Total for Question 2 is 6 marks)

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3 A library app pictogram shows the number of e-books downloaded each day for five days, but the key is missing. Mon: 2 symbols. Tue: 4 symbols. Wed: 3 symbols. Thu: 1 symbol. Fri: 2 symbols. The total number of downloads over the five days was 180.

E-book downloads (Monday to Friday)

Monday	
Tuesday	
Wednesday	
Thursday	
Friday	

Key:  = **?** downloads (key hidden)

Total downloads (Monday to Friday) = 180

(a) Work out the number of downloads represented by 1 symbol. **(2)**

.....

(b) Work out the number of downloads on Wednesday. **(2)**

.....

(c) Work out the number of downloads on Thursday. **(1)**

.....

(Total for Question 3 is 5 marks)

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4 A pictogram shows how members travel to a youth club, using the key 1 symbol = 4 members. Walk: 5 symbols. Bike: 2 symbols. Bus: 3 symbols. The pictogram does not show a row for Car, but 6 more members travel by car than by bike.

(a) Work out the number of members who walk to the youth club. **(1)**

.....

(b) Work out the number of members who travel by car. **(2)**

.....

(c) Work out the total number of members recorded, including those who travel by car. **(2)**

.....

(d) Work out what percentage of the total members travel by bus. **(2)**

.....

(Total for Question 4 is 7 marks)

5 A charity bake sale recorded these sales: Victoria sponge 20, Lemon drizzle 10, Brownies 25, Flapjack 5. Nadia wants to show this data as a pictogram using the key 1 symbol = 2 cakes. Explain why this key is a poor choice for this data, and suggest a better key, giving a reason for your choice.

.....

.....

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.....

(Total for Question 5 is 3 marks)

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Mark scheme · 1.13 Pictograms: 30-minute Pack

Question 1

(a) 1 cao **B1**

(a) Answer: 1

(b) Apple cao **B1**

(b) Answer: Apple

(c) 7 + 5 + 3 + 1 oe **M1**

(c) 16 cao **A1**

(c) Answer: 16

Question 2

(a) 3 + 2.5 + 4 (= 9.5 symbols), x 20, oe **M1**

(a) 190 cao **A1**

(a) Answer: 190

(b) 4 + 3 + 5 (= 12 symbols), x 15, oe **M1**

(b) 180 cao **A1**

(b) Answer: 180

(c) School A stated (ft their totals from (a) and (b)) **B1**

(c) correct reason comparing the two totals, e.g. 190 bags is more than 180 bags, oe (ft) **B1**

(c) Answer: School A, because they collected 190 bags compared to School B's 180 bags.

Question 3

(a) 180 / (2+4+3+1+2), i.e. 180 / 12, oe **M1**

(a) 15 cao **A1**

(a) Answer: 1 symbol = 15 downloads

(b) 3 x their key from (a) **M1**

(b) 45 cao (ft their key) **A1**

(b) Answer: 45

(c) 15 cao (ft their key) **B1**

(c) Answer: 15

Question 4

(a) 20 cao **B1**

(a) Answer: 20

(b) bike = 2 x 4 = 8 identified, then + 6 oe **M1**

(b) 14 cao **A1**

(b) Answer: 14

(c) 20 + 8 + 12 + 14 oe, ft **M1**

(c) 54 cao **A1**

(c) Answer: 54

(d) 12 / their total (54) oe, ft **M1**

(d) awrt 22.2% cao (accept 22 2/9%) **A1**

(d) Answer: 22.2% (awrt)

Question 5

identifies a genuine problem with key = 2, e.g. Brownies would need 12.5 symbols (too many to draw clearly, and needing a half symbol), and Flapjack would also need a half symbol (2.5) oe **B1**

suggests a valid alternative key with a reason, e.g. 1 symbol = 5 cakes because it gives a whole number of symbols for every type oe **B1**

correctly recomputes at least two symbol counts under the suggested key, e.g. Victoria sponge 4 and Brownies 5 oe **B1**

Answer: The key of 1 symbol = 2 cakes is a poor choice because Brownies (25 cakes) would need 12.5 symbols, far too many to draw clearly, and Flapjack would also need a half symbol (2.5 symbols). A better key is 1 symbol = 5 cakes, which gives a whole number of symbols for every type: Victoria sponge 4, Lemon drizzle 2, Brownies 5, Flapjack 1.

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