FOUNDATION

1.13 Pictograms: 1-hour Pack

EDEXCEL 1MA1 · Calculator allowed · about 60 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 A pictogram shows the number of pupils who chose each activity for a school trip day, using the key 1 symbol = 1 pupil. Alton Towers: 5 symbols. London Zoo: 3 symbols. Warwick Castle: 2 symbols. Chessington: 6 symbols.

(a) Write down the number of pupils who chose Warwick Castle. **(1)**

.....

(b) List the four activities in order of popularity, starting with the most popular. **(2)**

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

.....

(Total for Question 1 is 5 marks)

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2 A pictogram shows the number of people who chose each snack at a school fair stall, using the key 1 symbol = 1 person. Crisps: 8 symbols. Fruit: 4 symbols. Sandwich: 6 symbols. Yoghurt: 2 symbols.

(a) Write down the number of people who chose fruit. **(1)**

.....

(b) Work out the range of the number of people choosing each snack. **(2)**

.....

(c) Work out the fraction of people who chose crisps, giving your answer in its simplest form. **(2)**

.....

(Total for Question 2 is 5 marks)

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3 A pictogram shows the flavour of ice lolly chosen by children at a summer camp, using the key 1 symbol = 1 child. Strawberry: 6 symbols. Lime: 3 symbols. Orange: 5 symbols. Cola: 4 symbols.

(a) Write down the number of children who chose lime. **(1)**

.....

(b) Write down the most popular flavour. **(1)**

.....

(c) Work out the fraction of children who chose a fruit-flavoured lolly (strawberry, lime or orange), giving your answer in its simplest form. **(2)**

.....

(Total for Question 3 is 4 marks)

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4 A table shows how pupils travel to school. A pictogram is to be drawn using the key: 1 symbol = 3 pupils.

Method of travel	Number of pupils
Walk	24
Cycle	9
Bus	15
Car	6

Pictogram key to be used: 1 symbol = 3 pupils

(a) Write down how many symbols should be used to represent Cycle. **(1)**

.....

(b) Write down how many symbols should be used to represent Car. **(1)**

.....

(c) A pupil says: 'Since 24 pupils walk to school, I need to draw exactly 24 symbols for Walk.' Explain why the pupil is wrong. **(1)**

(Total for Question 4 is 3 marks)

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5 A theatre sold tickets for a concert over four nights. The pictogram key is 1 symbol = 5 tickets. Night 1: 4 symbols. Night 2: 6 symbols. Night 3: 5 symbols. Night 4 is not yet drawn on the pictogram. The total number of tickets sold over all four nights was 130.

Concert Tickets Sold

Night 1 

Night 2 

Night 3 

Night 4 ?

Key:  = 5 tickets

(a) Work out the number of tickets sold on Night 4. **(3)**

.....

(b) Work out how many symbols (including any half symbol) should be drawn to represent Night 4 on the pictogram. **(2)**

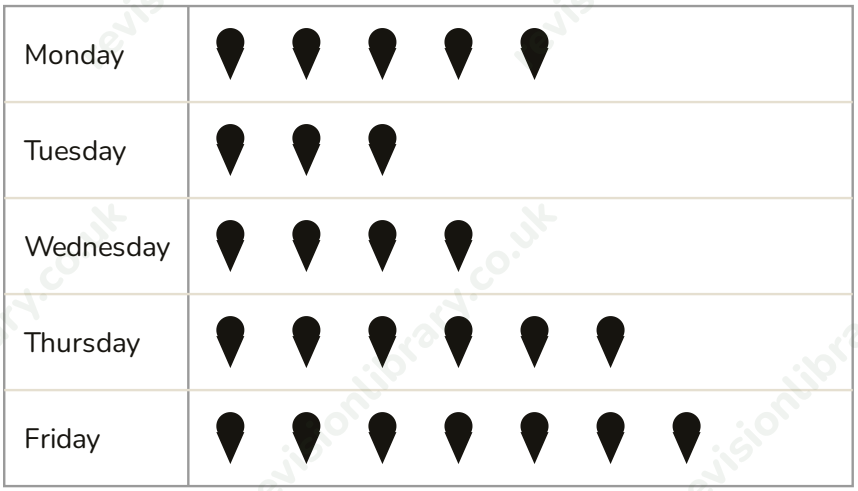
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(Total for Question 5 is 5 marks)

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6 A van sells ice creams at a seaside town. The pictogram shows the number sold on each of five days.

Ice creams sold by the van



(a) Write down the key used for this pictogram. **(1)**

.....

(b) Work out the number of ice creams sold on Thursday. **(1)**

.....

(c) Work out the total number of ice creams sold from Monday to Friday. **(3)**

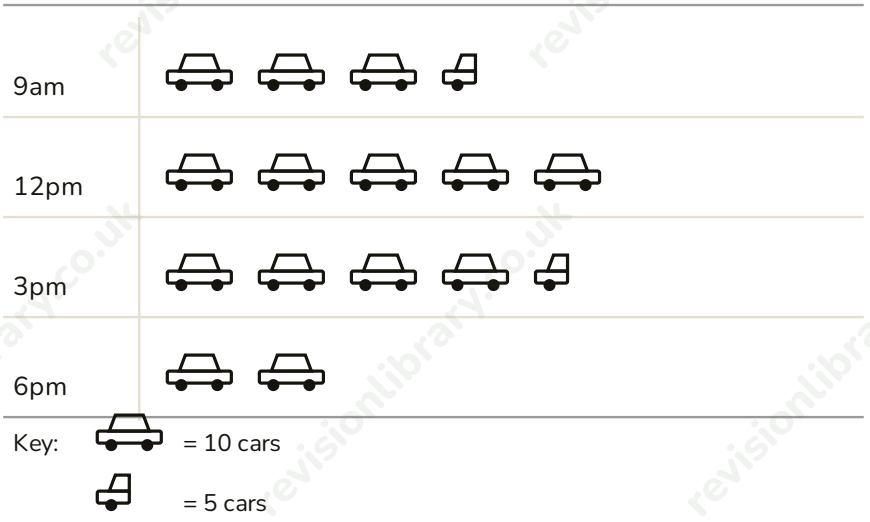
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(Total for Question 6 is 5 marks)

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7 The manager of Riverside Car Park recorded the number of cars parked at four different times of day. The pictogram shows the results.

Riverside Car Park - Cars Parked



(a) Write down the number of cars parked at 6pm. **(1)**

.....

(b) Work out the number of cars parked at 9am. **(2)**

.....

(c) Work out how many more cars were parked at 12pm than at 6pm. **(2)**

.....

(Total for Question 7 is 5 marks)

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8 A pictogram shows the mass of recycling collected on a housing estate, using the key 1 symbol = 8 kg. Paper: 5 symbols. Glass: 3 symbols. Plastic: 2 symbols. Food waste: 6 symbols.

(a) Work out the total mass of recycling collected. **(2)**

.....

(b) Work out the percentage of the total recycling that was food waste. **(2)**

.....

(c) Work out the percentage of the total recycling that was either paper or glass. **(2)**

.....

(Total for Question 8 is 6 marks)

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9 A garden centre recorded the number of packets of seeds sold in Spring and in Summer, using separate pictograms with the same key: 1 symbol = 10 packets. Spring: 6 symbols. Summer: 9 symbols.

(a) Work out the number of packets sold in Spring. **(1)**

.....

(b) Work out the number of packets sold in Summer. **(1)**

.....

(c) Work out the percentage increase from Spring to Summer. **(3)**

.....

(Total for Question 9 is 5 marks)

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10 A pictogram is drawn using the key: 1 symbol = 10 pupils. Only whole, half and quarter symbols may be used. Explain why this pictogram would not be able to show accurately that exactly 23 pupils walk to school.

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(Total for Question 10 is 2 marks)

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Mark scheme · 1.13 Pictograms: 1-hour Pack

Question 1

(a) 2 cao **B1**

(a) Answer: 2

(b) at least three activities correctly placed relative to each other oe **M1**

(b) Chessington, Alton Towers, London Zoo, Warwick Castle cao **A1**

(b) Answer: Chessington, Alton Towers, London Zoo, Warwick Castle

(c) 5 + 3 + 2 + 6 oe **M1**

(c) 16 cao **A1**

(c) Answer: 16

Question 2

(a) 4 cao **B1**

(a) Answer: 4

(b) 8 - 2 oe **M1**

(b) 6 cao **A1**

(b) Answer: 6

(c) 8 out of a total of 20 identified, e.g. 8/20 oe **M1**

(c) 2/5 cao **A1**

(c) Answer: 2/5

Question 3

(a) 3 cao **B1**

(a) Answer: 3

(b) Strawberry cao **B1**

(b) Answer: Strawberry

(c) 6 + 3 + 5 = 14 out of a total of 18 identified, e.g. 14/18 oe **M1**

(c) 7/9 cao **A1**

(c) Answer: 7/9

Question 4

(a) 3 (symbols) cao **B1**

(a) Answer: 3 symbols

(b) 2 (symbols) cao **B1**

(b) Answer: 2 symbols

(c) correct explanation that each symbol represents 3 pupils (the key), not 1 pupil, so only 8 symbols are needed (24 / 3 = 8), oe **B1**

(c) Answer: Each symbol represents 3 pupils, not 1, so only 8 symbols are needed (24 / 3 = 8), not 24 symbols.

Question 5

(a) (4 + 6 + 5) x 5, i.e. 15 x 5 = 75, oe **M1**

(a) 130 - 75 (ft their 75) **M1**

(a) 55 cao **A1**

(a) Answer: 55

(b) 55 / 5 (ft their answer to (a)) **M1**

(b) 11 (symbols) cao **A1**

(b) Answer: 11 symbols

Question 6

(a) 1 symbol = 2 ice creams cao **B1**

(a) Answer: 1 symbol = 2 ice creams

(b) 12 cao **B1**

(b) Answer: 12

(c) 5 + 3 + 4 + 6 + 7 (= 25 symbols) oe **M1**

(c) 25 x 2 (ft their symbol total) **M1**

(c) 50 cao **A1**

(c) Answer: 50

Question 7

(a) 20 cao **B1**

(a) Answer: 20

(b) 3.5 x 10 oe **M1**

(b) 35 cao **A1**

(b) Answer: 35

(c) 50 - 20 oe, with 50 and 20 correctly read from the pictogram **M1**

(c) 30 cao **A1**

(c) Answer: 30

Question 8

(a) 40 + 24 + 16 + 48 oe **M1**

(a) 128 kg cao **A1**

(a) Answer: 128 kg

(b) 48 / 128 oe, ft their total **M1**

(b) 37.5% cao **A1**

(b) Answer: 37.5%

(c) (40 + 24) / 128 oe, ft their total **M1**

(c) 50% cao **A1**

(c) Answer: 50%

Question 9

(a) 60 cao **B1**

(a) Answer: 60

(b) 90 cao **B1**

(b) Answer: 90

(c) 90 - 60 = 30 oe, ft **M1**

(c) their increase / 60 oe, ft **M1**

(c) 50% cao **A1**

(c) Answer: 50%

Question 10

identifies that 23 is not a multiple of the key value 10, oe **B1**

explains the consequence, e.g. a symbol worth 3/10 of the key would need to be drawn, which cannot be shown clearly/accurately as a simple fraction (unlike a half or quarter), so the value 23 cannot be represented exactly, oe **B1**

Answer: 23 is not a multiple of 10, so 23 / 10 = 2.3 symbols would be needed. This is not a simple fraction like a half or a quarter of a symbol, so it cannot be drawn clearly or accurately on the pictogram; the value would have to be rounded, losing accuracy.

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