2.65-4 Data and Probability: Practice Set 4: 30-minute Pack

Calculators not allowed · about 30 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 Six buses on the number 14 route were recorded as being this many minutes late: 3, 0, 7, 2, 9, 4.

What is the range of these times?

(1)

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2 In a science investigation, the heights of 8 sunflower seedlings were measured in centimetres: 12, 18, 9, 15, 21, 11, 17, 14.

Find the median height.

(2)

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3 A fair six-sided dice is rolled once.

What is the probability that the score is a factor of 6?
A) 1/6 B) 1/3 C) 1/2 D) 2/3

(1)

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4 A spinner is divided into 8 equal sections numbered 1 to 8.

What is the probability that the spinner lands on a square number? Give your answer as a fraction in its simplest form.

(1)

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5 A jar contains 20 sweets, and every single one is orange-flavoured. Zara picks one sweet from the jar without looking.

Use one of these words to describe the probability that she picks a sweet that is NOT orange-flavoured: impossible, unlikely, evens, likely, certain.

(1)

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6 A pie chart shows the favourite breaktime activity of 48 pupils. The sectors are: Football 120 degrees, Reading 90 degrees, Trampolining 60 degrees, Board games 90 degrees.

How many pupils chose trampolining as their favourite breaktime activity?

(2)

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7 In a survey of 54 pupils' favourite crisp flavour, 9 pupils chose cheese and onion.

Calculate the angle needed to represent 'cheese and onion' on a pie chart.

(2)

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8 A pie chart shows how pupils at Millfield Primary spend their pocket money. The sector for 'sweets' has an angle of 40 degrees, representing 20 pupils.

Work out the total number of pupils surveyed.

(3)

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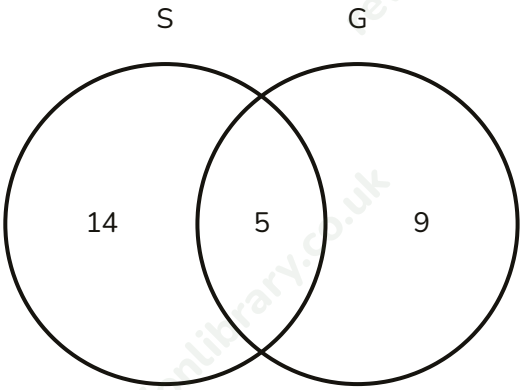
9 The table shows the number of runs scored in each of 20 overs bowled in a junior cricket match. Runs scored per over (x): 0, 1, 2, 3, 4, 5. Number of overs (f): 1, 4, 6, 5, 3, 1.

Calculate the mean number of runs scored per over.

(3)

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10 A Venn diagram shows 32 Year 6 pupils who are in the swimming club (S) and the gymnastics club (G). 14 pupils are only in the swimming club, 9 pupils are only in the gymnastics club, and 5 pupils are in both clubs. The rest are in neither club.



(a) How many pupils are in neither the swimming club nor the gymnastics club? **(2)**

.....

(b) One pupil is chosen at random from the group of 32. What is the probability that the pupil is in the swimming club? Give your answer as a fraction in its simplest form. **(2)**

.....

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11 A fair coin is flipped and, at the same time, a spinner with three equal sections labelled 1, 2 and 3 is spun.

List all the possible outcomes, then work out the probability of getting a Head and an odd number.

(3)

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12 A craft box contains 5 purple beads and 7 orange beads. Nadia picks one bead at random and does not put it back. She then picks a second bead at random.

Work out the probability that both beads are purple. Give your answer as a fraction in its simplest form.

(3)

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13 A list of 6 whole numbers has a mean of 7, a mode of 5, and a range of 9.

Find a set of six numbers that satisfies all three conditions.

(3)

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14 A survey asked 24 pupils in Year 6 to name their favourite ice cream flavour. The results were recorded with tally marks, grouped in 5s: Vanilla had 2 full groups of 5 plus 2 more (12 tally marks), Chocolate had 1 full group of 5 plus 2 more (7 tally marks), and Strawberry had 1 full group of 5 (5 tally marks).

How many pupils chose Chocolate?
A) 5 B) 6 C) 7 D) 8

(1)

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15 Using the same tally chart of favourite ice cream flavours (Vanilla 12, Chocolate 7, Strawberry 5), answer the following.

(a) How many more pupils chose Vanilla than Strawberry? **(1)**

.....

(b) How many pupils took part in the survey altogether? **(1)**

.....

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Mark scheme · 2.65-4 Data and Probability: Practice Set 4: 30-minute Pack

Question 1

9 minutes cao **B1**

Answer: 9 minutes

Question 2

correctly orders the eight values and identifies the middle two (14 and 15): 9, 11, 12, 14, 15, 17, 18, 21 **M1**

14.5 cm oe cao **A1**

Answer: 14.5 cm

Question 3

D (2/3) oe cao **B1**

Answer: D) 2/3

Question 4

1/4 oe, must be simplest form **B1**

Answer: 1/4

Question 5

impossible cao **B1**

Answer: Impossible

Question 6

60/360 x 48 oe **M1**

8 cao **A1**

Answer: 8 pupils

Question 7

9/54 x 360 oe **M1**

60 degrees cao **A1**

Answer: 60 degrees

Question 8

20/40 (or equivalent, finding pupils per degree) **M1**

0.5 x 360, dependent on the first M1 **dM1**

180 cao **A1**

Answer: 180 pupils

Question 9

at least three correct products found: 0x1=0, 1x4=4, 2x6=12, 3x5=15, 4x3=12, 5x1=5 **M1**

48 (sum of all six products) **M1**

2.4 cao (accept 48/20 or 12/5) **A1**

Answer: 2.4 runs per over

Question 10

(a) 14 + 9 + 5 (=28) oe **M1**

(a) 4 cao **A1**

(a) Answer: 4 pupils

(b) 14 + 5 (=19) oe, ft from part (a) working **M1**

(b) 19/32 oe cao **A1**

(b) Answer: 19/32

Question 11

lists all six outcomes: H1, H2, H3, T1, T2, T3 oe **M1**

identifies the two favourable outcomes, H1 and H3 **M1**

1/3 oe cao **A1**

Answer: 1/3

Question 12

P(first purple) = 5/12 oe **M1**

P(second purple) = 4/11 oe, dependent on the first pick being purple **dM1**

5/33 oe cao **A1**

Answer: 5/33

Question 13

six whole numbers with a sum of 42 (mean 7) **B1**

5 correctly appearing as the only repeated value (mode 5) **B1**

largest value minus smallest value equal to 9 (range 9); accept any other valid list of six whole numbers meeting all three conditions **B1**

Answer: 4, 5, 5, 7, 8, 13 (example; other valid answers exist)

Question 14

C (7) cao **B1**

Answer: C) 7

Question 15

(a) 7 cao **B1**

(a) Answer: 7

(b) 24 cao **B1**

(b) Answer: 24

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