Probability: 10 practice questions

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Name: _____ Date: _____

Attempt all questions and show your working. Suggested time: 15 to 20 minutes.

Section A: Consolidating (Questions 1-4)

Question 1

A coin is tossed and a six-sided die is rolled.

(a) List all the possible outcomes (for example, H1 means a head and a 1).

(b) How many outcomes are there?

Question 2

In a class of 30 students, 18 play a sport, 12 play a musical instrument and 5 do both.

(a) How many students play a sport only?

(b) How many play an instrument only?

(c) How many students do neither?

Question 3

Copy and complete the two-way table.

	Has a pet	No pet	Total
Boys	8		14
Girls		5	
Total			30

Question 4

Two fair coins are tossed.

(a) Draw a tree diagram and list all the possible outcomes.

(b) Find the probability of getting one head and one tail.

Section B: Standard (Questions 5-10)

Question 5

A survey of 120 students asked whether they prefer learning online or in person.

	Online	In person	Total
Year 7	25	35	60
Year 8	40	20	60
Total	65	55	120

A student from the survey is chosen at random. Find the probability, in simplest form, that the student:

(a) is in Year 8 and prefers online

(b) prefers online

(c) is in Year 7 or prefers in person (or both)

Question 6

Use the information from Question 2: in a class of 30 students, 18 play a sport, 12 play a musical instrument and 5 do both.

(a) Describe the four regions of a Venn diagram for this information, with the number of students in each region.

(b) A student is chosen at random. Find the probability, in simplest form, that the student plays a sport only.

(c) Find the probability that the student plays a sport or an instrument (or both).

Question 7

A spinner with three equal sections, red (R), blue (B) and green (G), is spun and then a coin is tossed.

(a) Draw a tree diagram and list all the outcomes.

(b) Find the probability of red and a head.

(c) Find the probability of not green and a tail.

Question 8

Spinner 1 has three equal sections numbered 1, 2 and 3. Spinner 2 has four equal sections numbered 1, 2, 3 and 4. Both spinners are spun and the two numbers are added.

(a) Draw a two-way table showing all the possible sums. How many outcomes are there?

(b) Find the probability that the sum is 5.

(c) Find the probability that the sum is even.

Question 9

The whole numbers from 1 to 20 are sorted into a Venn diagram. Set A is the multiples of 3 and set B is the multiples of 4.

(a) List the numbers in A only, in B only, and in both A and B.

(b) How many numbers are in neither set?

(c) A number from 1 to 20 is chosen at random. Find the probability that it is in A or B (or both).

Question 10

Two fair six-sided dice are rolled.

(a) How many possible outcomes are there?

(b) Find the probability of rolling a double (both dice the same).

(c) Find the probability that the sum is greater than 9.

(d) Find the probability that at least one die shows a 4.

Probability: answers

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Question 1

Answer: (a) H1, H2, H3, H4, H5, H6, T1, T2, T3, T4, T5, T6 (b) 12

Question 2

Answer: (a) 13 (18 - 5) (b) 7 (12 - 5) (c) 5 (30 - 13 - 7 - 5)

Question 3

Answer: Boys: 8, 6, 14. Girls: 11, 5, 16. Total: 19, 11, 30.

Question 4

Answer: (a) HH, HT, TH, TT (b) 2/4 = ½

Question 5

Answer: (a) 40/120 = ⅓ (b) 65/120 = 13/24 (c) 80/120 = ⅔ (25 + 35 + 20)

Question 6

Answer: (a) Sport only 13, both 5, instrument only 7, neither (outside both circles) 5 (b) 13/30 (c) 25/30 = ⅚

Question 7

Answer: (a) RH, RT, BH, BT, GH, GT (b) ⅙ (c) 2/6 = ⅓ (RT and BT)

Question 8

Answer: (a) Rows for Spinner 1 = 1, 2, 3: sums 2, 3, 4, 5; 3, 4, 5, 6; 4, 5, 6, 7. There are 12 outcomes. (b) 3/12 = ¼ (c) 6/12 = ½

Question 9

Answer: (a) A only: 3, 6, 9, 15, 18. B only: 4, 8, 16, 20. Both: 12. (b) 10 (c) 10/20 = ½

Question 10

Answer: (a) 36 (b) 6/36 = ⅙ (c) 6/36 = ⅙ (sums of 10, 11, 12) (d) 11/36