



## Probability Exam Practice

Q1. David chooses a number at random between 1 and 12 inclusive.  
Mark on the probability scale the events A, B, C and D where:

A is choosing an odd number

B is choosing a multiple of 15

C is choosing a prime number greater than 3

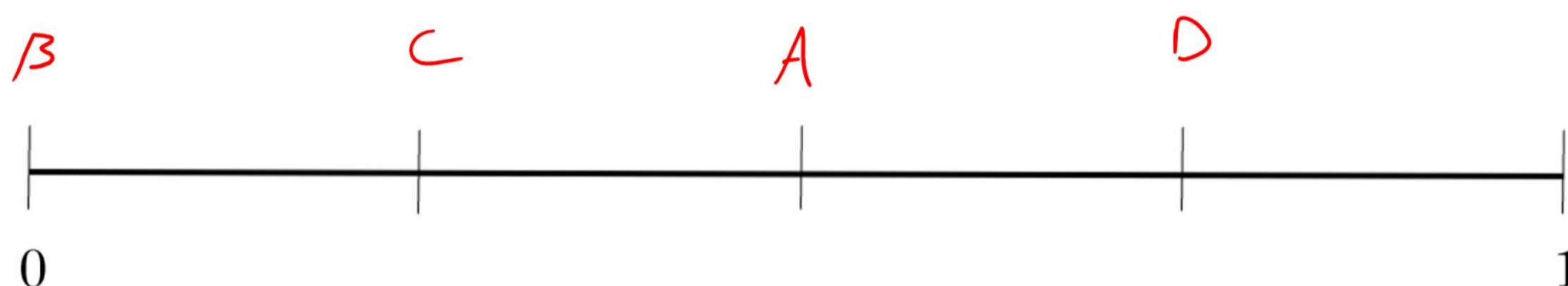
D choosing a number less than 10

$$6/12 = \frac{1}{2}$$

0

$$\{5, 7, 11\} \quad \frac{3}{12} = \frac{1}{4}$$

$$\frac{9}{12} = \frac{3}{4}$$



Answer: \_\_\_\_\_  
(4 marks)

Q2. A fair dice, numbered 1 to 6 in the usual way, is thrown. Work out the probability that a square number is rolled.

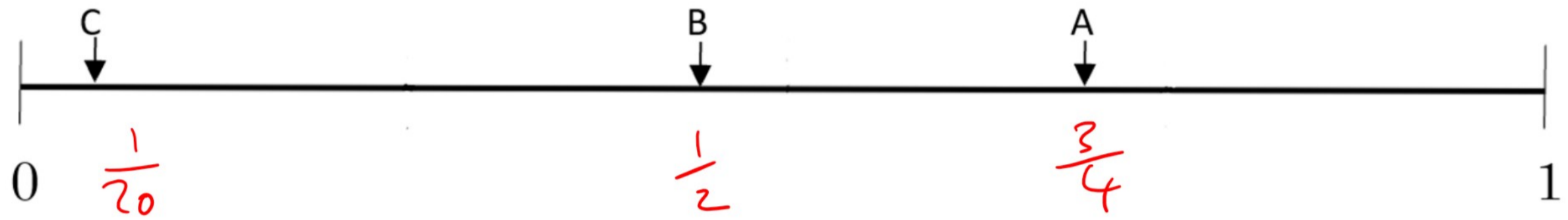
Squares:  $\{1, 4\}$

$$\Rightarrow \frac{2}{6}$$

Answer:  $\frac{1}{3}$  \_\_\_\_\_  
(2 marks)



Q3. Estimate the probability of each of the events A, B and C from the probability scale below:

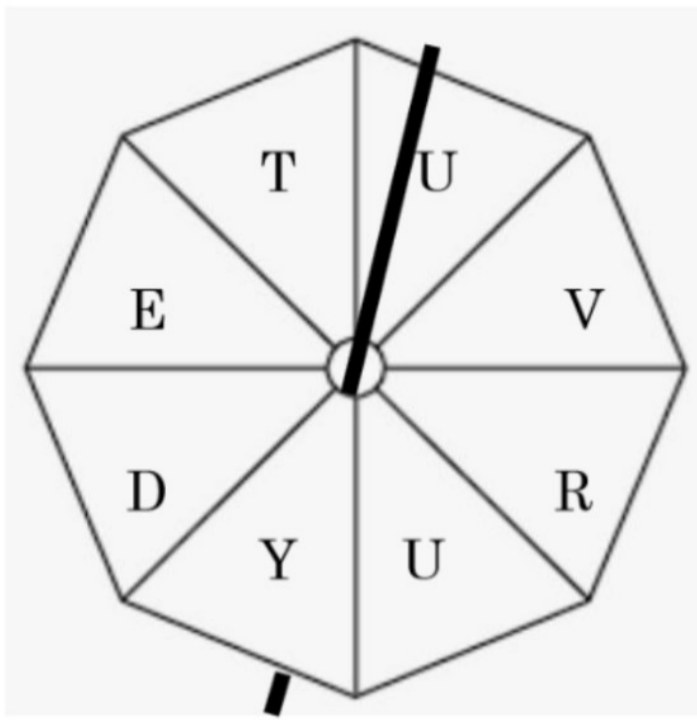


(or similar)

Answer: \_\_\_\_\_  
(3 marks)



Q4. In the English language, a vowel is any of the letters A, E, I, O, or U.



Work out the probability that the spinner lands on:

- (i) an E  $\frac{1}{8}$
- (ii) any letter which is not a vowel  $\frac{5}{8}$
- (iii) the letter A 0

Answer: \_\_\_\_\_

(3 marks)



Q5. The weather news on channel A states the probability of it snowing the next day is 35%, whereas the weather news on channel B states that the probability is  $\frac{2}{5}$ . Which channel thinks it is the least likely to snow? You must show your reasoning.

(B)  $\frac{2}{5} = 40\%$

(A) 35%

(A)  $\Rightarrow$  least likely to snow

Answer: (A)  
(2 marks)



Q6. Here is a list of numbers:

2, 4, 5, 8, 4, 3, 0, 10, 15, 18, 7, 14

A number is chosen at a random from the list, find the probability that it is:

(a) an even number

$$\frac{8}{12}$$

Answer:  $\frac{2}{3}$  \_\_\_\_\_  
(1 mark)

(b) a number less than 4

$$\frac{3}{12}$$

Answer:  $\frac{1}{4}$  \_\_\_\_\_  
(1 mark)

(c) a prime number

$$\frac{4}{12}$$

Answer:  $\frac{1}{3}$  \_\_\_\_\_  
(1 mark)



Q7. A box contains 18 crayons. 6 are black, 3 are red, the rest are green.  
Work out the probability that a randomly selected crayon is:

a) green

9 green

$$\frac{9}{18} = \frac{1}{2}$$

Answer:            $\frac{1}{2}$             
(1 mark)

b) not black

$$\frac{12}{18} = \frac{2}{3}$$

Answer:            $\frac{2}{3}$             
(1 mark)



Q8. At a Christmas raffle, a total of 200 tickets are sold some of which will win the buyer a prize. The prizes on offer are three £25 prizes, two £50 prizes and one £100 prize. What is the probability that:

a) the buyer wins a £50 prize?

$$\frac{2}{200} = \frac{1}{100}$$

Answer:  $\frac{1}{100}$   
(2 marks)

b) the buyer does not win anything?

$$\frac{197}{200} = \frac{97}{100}$$

Answer:  $\frac{97}{100}$   
(2 marks)



Q9. There are red, green, blue and purple counters in a bag. A counter is picked at random from the bag. There are twice as many purple counters as red counters in the bag.

a) Complete the probability table shown below:

Colour	Red	Green	Blue	Purple
Probability	0.2	0.1	0.3	0.4

$$\begin{aligned} & \bullet 1 - 0.1 - 0.3 = 0.6 \\ & \bullet \text{let } x = p(\text{red}) \\ \Rightarrow & x + 2x = 0.6 \\ & 3x = 0.6 \\ & x = 0.2 \end{aligned}$$

Answer: \_\_\_\_\_

(2 marks)

b) Work out the probability of not choosing a blue counter.

$$\begin{aligned} & 1 - 0.3 \\ & = 0.7 \end{aligned}$$

Answer: 0.7

(1 mark)

c) Rob counts all the counters in the bag and claims that there are 24 counters. Explain why this cannot be true.

$$\begin{aligned} & \text{No. of red would be } 24 \times 0.2 = 4.8 \\ & \text{(not a whole number)} \end{aligned}$$

Answer: \_\_\_\_\_

(1 mark)