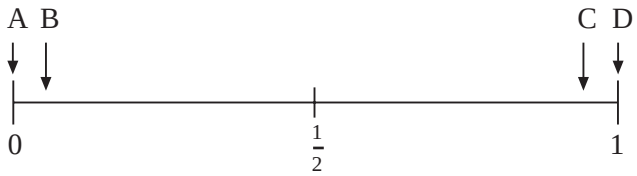
UNIT 21 *Probability of One Event* Revision Test 21.1 (Standard)

1. This probability line illustrates the probabilities of 4 events, A, B, C and D:



(a) Which event is *certain* to take place?

(b) Which event is *impossible*?

(c) Which event is *most unlikely* to take place, but is *not impossible*?

(d) Which event is *not certain* but is *likely* to take place?

(4 marks)

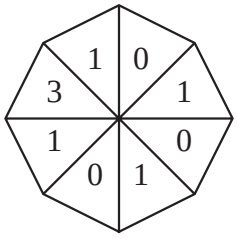
2. A packet of sweets contains 6 mints and 14 eclairs. A sweet is taken at random from the packet. What is the probability that it is:

(a) a mint,

(b) an eclair?

(4 marks)

3. The diagram shows a spinner:



When it is spun, what is the probability of obtaining:

(a) 0,

(b) 1,

(c) 3 ?

If the spinner is spun 400 times, how many times would you expect to obtain:

(d) 0,

(e) 1,

(f) 3 ?

(12 marks)

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4. The probability that Jonathan is late for school is $\frac{1}{20}$. What is the probability that he is not late for school?

(2 marks)

5. Ali notes that, on average, he misses the school bus once a week.
   (a) What is the probability that he misses the bus?
   (b) How many times would you expect him to miss the bus in 4 weeks?

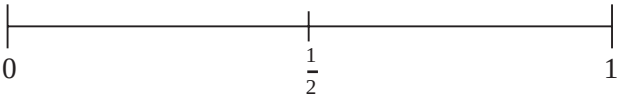
(4 marks)

6. Alex tosses a coin 200 times and gets 110 heads and 90 tails. Use this information to estimate the probability of getting:
   (a) a head,
   (b) a tail.

(4 marks)

UNIT 21 *Probability of One Event* Revision Test 21.2 (Academic)

1. Copy this probability line:



Mark on the line the events described below:

A : This event is *very likely* but *not certain.*

B : This event is *almost impossible.*

C : This event is *as likely* to happen as it is *not* to happen.

D : This event is *impossible.*

E : This event is *certain.*

(5 marks)

2. The probability that Elizabeth gets all her maths homework correct is 0.88.
What is the probability that she does *not* get it all correct?

(2 marks)

3. A bag contains 8 red sweets, 10 green sweets and 7 yellow sweets. A sweet is taken from the bag. What is the probability that it is:

(a) red,

(b) green,

(c) yellow,

(d) not red,

(e) red *or* green,

(f) red *or* yellow?

(12 marks)

4. A dice is rolled 240 times. How many times would you expect to get:

(a) 5,

(b) a number less than 3,

(c) an even number,

(d) a number greater than 1 ?

(8 marks)

5. Sharon's squash racket is marked "Your Serve" and "My Serve" on each side. She spins it 50 times and notes that she gets "My Serve" 20 times.

(a) Use these results to estimate the probability of her getting "Your Serve".

(b) What would you expect to happen to this estimate if she spun her racket many more times?

(3 marks)

UNIT 21 *Probability of One Enent* Revision Test 21.3 (Express)

1. A bag contains 30 balls, each marked with a different number from 1 to 30. A ball is taken from the bag at random. What is the probability that the number on the ball is:

   (a) even,

   (b) a multiple of 5,

   (c) a multiple of 3 *and* a multiple of 2,

   (d) a square number,

   (e) a multiple of 10 *or* a multiple of 4,

   (f) a prime number.

   (11 marks)

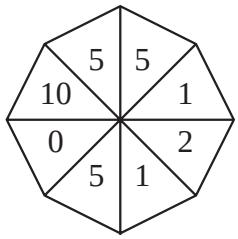
2. The diagram shows a spinner. It is spun 500 times.

   How many times would you expect to get:

   (a) 1,

   (b) a multiple of 5 *or* a multiple of 2,

   (c) a multiple of 5 *and* a multiple of 2.



   (6 marks)

3. The probability that a team wins a match is 0.45 and the probability that they draw is 0.42, What is the probability that they lose?

   (2 marks)

4. Two events, A and B, are such that $p(\text{A}) = 0.6$, $p(\text{B}) = 0.7$ and $p(\text{A and B}) = 0.5$. Determine $p(\text{A or B})$.

   (3 marks)

5. Two events, A and B, are such that $p(\text{A and B}) = 0.1$, $p(\text{A or B}) = 0.7$ and $p(\text{A}) = 0.45$. Determine $p(\text{B})$.

   (3 marks)

6. If A and B are mutually exclusive events with $p(\text{A}) = 0.4$ and $p(\text{B}) = 0.35$, determine:

   (a) $p(\text{A or B})$,

   (b) $p(\text{A and B})$.

   (3 marks)

7. A taxi driver passes through 50 sets of traffic lights and has to stop at 35 of them. Estimate the probability that he does *not* have to stop at a set of traffic lights.

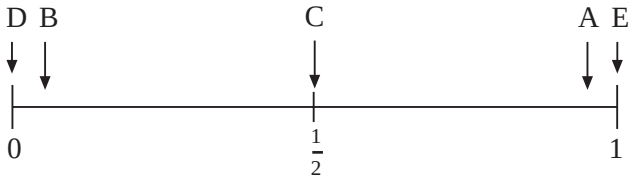
   (2 marks)

Revision Test 21.1 (Standard) Answers

1.	(a)	D	B1	
	(b)	A	B1	
	(c)	B	B1	
	(d)	C	B1	*(4 marks)*
2.	(a)	$\frac{6}{20} = \frac{3}{10}$	B2	
	(b)	$\frac{14}{20} = \frac{7}{10}$	B2	*(4 marks)*
3.	(a)	$\frac{3}{8}$	B2	
	(b)	$\frac{4}{8} = \frac{1}{2}$	B2	
	(c)	$\frac{1}{8}$	B2	
	(d)	$\frac{3}{8} \times 400 = 150$	M1 A1	
	(e)	$\frac{1}{2} \times 400 = 200$	M1 A1	
	(f)	$\frac{1}{8} \times 400 = 50$	M1 A1	*(12 marks)*
4.		$1 - \frac{1}{20} = \frac{19}{20}$	M1 A1	*(2 marks)*
5.	(a)	$\frac{1}{5}$	B2	
	(b)	4	B2	*(4 marks)*
6.	(e)	$\frac{110}{200} = \frac{11}{20}$	B2	
	(f)	$\frac{90}{200} = \frac{9}{20}$	B2	*(4 marks)*

(TOTAL MARKS 30)

Revision Test 21.2 (Academic) Answers

1. 

B1 B1 B1 B1 B1 *(5 marks)*

2. $1 - 0.88 = 0.12$ M1 A1 *(2 marks)*

3. (a) $\frac{8}{25}$ B2

(b) $\frac{10}{25} = \frac{2}{5}$ B2

(c) $\frac{7}{25}$ B2

(d) $\frac{17}{25}$ B2

(e) $\frac{18}{25}$ B2

(f) $\frac{15}{25} = \frac{3}{5}$ B2 *(12 marks)*

4. (a) $\frac{1}{6} \times 240 = 40$ M1 A1

(b) $\frac{1}{3} \times 240 = 80$ M1 A1

(c) $\frac{1}{2} \times 240 = 120$ M1 A1

(d) $\frac{5}{6} \times 240 = 200$ M1 A1 *(8 marks)*

5. (a) $\frac{30}{50} = \frac{3}{5}$ B2

(b) Get closer to $\frac{1}{2}$ B1 *(3 marks)*

(TOTAL MARKS 30)

Revision Test 21.3 (Express) Answers

1. (a) $\frac{15}{30} = \frac{1}{2}$ B1

   (b) $\frac{6}{30} = \frac{1}{5}$ B2

   (c) $\frac{5}{30} = \frac{1}{6}$ B2

   (d) $\frac{5}{30} = \frac{1}{6}$ B2

   (e) $\frac{10}{30} = \frac{1}{3}$ B2

   (f) $\frac{10}{30} = \frac{1}{3}$ B2 *(11 marks)*

2. (a) $\frac{1}{4} \times 500 = 125$ M1 A1

   (b) $\frac{5}{8} \times 500 = 312.5$ M1 A1

   (c) $\frac{1}{8} \times 500 = 62.5$ M1 A1 *(6 marks)*

3. $1 - 0.45 - 0.42 = 0.13$ M1 A1 *(2 marks)*

4. $p(\text{A or B}) = 0.6 + 0.7 - 0.5 = 0.8$ M1 A1 A1 *(3 marks)*

5. $p(\text{B}) = 0.7 + 0.1 - 0.45 = 0.35$ M1 A1 A1 *(3 marks)*

6. (a) $0.4 + 0.35 = 0.75$ M1 A1

   (b) 0 B1 *(3 marks)*

7. $\frac{15}{50} = \frac{3}{10}$ B2 *(2 marks)*

(TOTAL MARKS 30)