

Section 1: Working with probability

Solutions to Exercise level 1

1. (i)  $P(5) = \frac{1}{8}$

(ii)  $P(5 \text{ or more}) = P(5, 6, 7 \text{ or } 8) = \frac{4}{8} = \frac{1}{2}$

(iii)  $P(\text{less than } 5) = 1 - P(5 \text{ or more}) = 1 - \frac{1}{2} = \frac{1}{2}$

(iv)  $P(\text{multiple of } 2) = P(2, 4, 6 \text{ or } 8) = \frac{4}{8} = \frac{1}{2}$

2. (i)  $P(3) = \frac{1}{12}$

(ii)  $P(\text{even number}) = P(2, 4, 6, 8, 10 \text{ or } 12) = \frac{6}{12} = \frac{1}{2}$

(iii)  $P(\text{multiple of } 3 \text{ and even number}) = P(6, 12) = \frac{2}{12} = \frac{1}{6}$

(iv)  $P(\text{multiple of } 3 \text{ or even number}) = P(2, 3, 4, 6, 8, 9, 10 \text{ or } 12) = \frac{8}{12} = \frac{2}{3}$

(v)  $P(\text{neither multiple of } 3 \text{ or even number}) = 1 - \frac{2}{3} = \frac{1}{3}$

3.

		Dice 1					
		1	2	3	4	5	6
Dice 2	1	2	3	4	5	6	7
	2	3	4	5	6	7	8
	3	4	5	6	7	8	9
	4	5	6	7	8	9	10
	5	6	7	8	9	10	11
	6	7	8	9	10	11	12

(i)  $P(\text{total} = 6) = \frac{5}{36}$

(ii)  $P(\text{total} = 7) = \frac{6}{36} = \frac{1}{6}$

(iii)  $P(\text{total} = 3 \text{ or } 4) = \frac{5}{36}$

(iv)  $P(\text{total score is even}) = \frac{18}{36} = \frac{1}{2}$

# Edexcel AS Maths Probability 1 Exercise solutions

4.

	Dog owner	Not a dog owner	Total
Child	28	32	60
Adult	67	33	100
<b>Total</b>	<b>95</b>	<b>65</b>	<b>160</b>

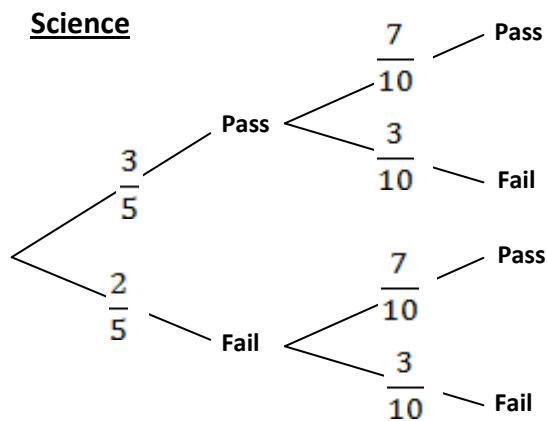
$$(i) \quad P(\text{A child who owns a dog}) = \frac{28}{160} = \frac{7}{40}$$

$$(ii) \quad P(\text{An adult who does not own a dog}) = \frac{33}{160}$$

$$(iii) \quad P(\text{A person who owns a dog}) = \frac{95}{160} = \frac{19}{32}$$

5.

## Geography



$$(i) \quad P(\text{The student will pass both tests}) = \frac{3}{5} \times \frac{7}{10} = \frac{21}{50}$$

$$(ii) \quad P(\text{The student will fail both tests}) = \frac{2}{5} \times \frac{3}{10} = \frac{6}{50} = \frac{3}{25}$$

$$(iii) \quad P(\text{The student will pass one test and fail one test}) = P(PF) + P(FP)$$

$$= \frac{3}{5} \times \frac{3}{10} + \frac{2}{5} \times \frac{7}{10}$$

$$= \frac{23}{50}$$