

### 3.3 Answers

### GCSE Mathematics Probability

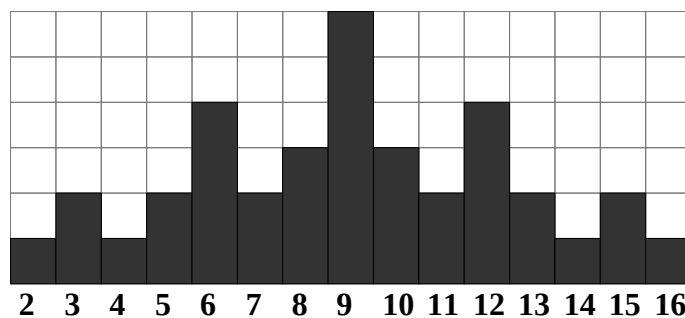
#### 3.3.1 Solution to 3.1 Introduction

(a)

|                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                                                                                   |  |  |  |  |  |  |  |
|  | 2                                                                                 | 3                                                                                 | 5                                                                                 | 6                                                                                 | 8                                                                                 | 9                                                                                 |                                                                                     |
|  | 3                                                                                 | 4                                                                                 | 6                                                                                 | 7                                                                                 | 9                                                                                 | 10                                                                                |                                                                                     |
|  | 5                                                                                 | 6                                                                                 | 8                                                                                 | 9                                                                                 | 11                                                                                | 12                                                                                |                                                                                     |
|  | 6                                                                                 | 7                                                                                 | 9                                                                                 | 10                                                                                | 12                                                                                | 13                                                                                |                                                                                     |
|  | 8                                                                                 | 9                                                                                 | 11                                                                                | 12                                                                                | 14                                                                                | 15                                                                                |                                                                                     |
|  | 9                                                                                 | 10                                                                                | 12                                                                                | 13                                                                                | 15                                                                                | 16                                                                                |                                                                                     |

[ 4 marks ]

(b)



Each square represents a probability of  $\frac{1}{36}$

[ 2 marks ]

(c) (i) 9

[ 1 mark ]

(ii) 2, 4, 14, 16

[ 1 mark ]

(iii) 8 out of 36 which cancels to  $\frac{2}{9}$

[ 1 mark ]

### 3.3.2 Solutions to 3.2 Exercise

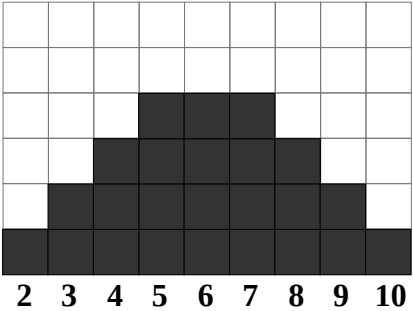
#### Answer 1

(a)

|   |   |   |   |   |   |    |   |
|---|---|---|---|---|---|----|---|
|   |   | • | • | • | • | •  | • |
| • | 2 | 3 | 4 | 5 | 6 | 7  |   |
| • | 3 | 4 | 5 | 6 | 7 | 8  |   |
| • | 4 | 5 | 6 | 7 | 8 | 9  |   |
| • | 5 | 6 | 7 | 8 | 9 | 10 |   |

[ 3 marks ]

(b)



Each square represents a probability of  $\frac{1}{24}$

[ 2 marks ]

(c) (i)  $\frac{4}{24}$  (ii)  $\frac{10}{24}$  (iii)  $\frac{10}{24}$  (iv) 1

[ 4 marks ]

#### Answer 2

(a)

|   |   |   |   |   |   |
|---|---|---|---|---|---|
|   |   | • | • | • | • |
| • | 2 | 3 | 4 | 5 |   |
| • | 3 | 4 | 5 | 6 |   |
| • | 4 | 5 | 6 | 7 |   |
| • | 5 | 6 | 7 | 8 |   |

[ 4 marks ]

(b) (i)  $\frac{1}{16}$  (ii)  $\frac{3}{16}$  (iii)  $\frac{8}{16}$  or  $\frac{1}{2}$  (iv)  $\frac{10}{16}$  or  $\frac{5}{8}$  [ 4 marks ]

(c) 5 [ 1 mark ]

(d) 0 or any other number or glyph or symbol ... [ 1 mark ]

### Answer 3

(a)  $33\frac{1}{3}\%$  (b) I or O [ 1, 1 marks ]

### Answer 4

(a)

|                       |   | R E D |    |    |    |    |    |
|-----------------------|---|-------|----|----|----|----|----|
| G<br>R<br>E<br>E<br>N |   | 1     | 2  | 3  | 4  | 5  | 6  |
|                       | 1 | 1     | 2  | 3  | 4  | 5  | 6  |
|                       | 2 | 2     | 4  | 6  | 8  | 10 | 12 |
|                       | 3 | 3     | 6  | 9  | 12 | 15 | 18 |
|                       | 4 | 4     | 8  | 12 | 16 | 20 | 24 |
|                       | 5 | 5     | 10 | 15 | 20 | 25 | 30 |
|                       | 6 | 6     | 12 | 18 | 24 | 30 | 36 |

[ 3 marks ]

(b) (i)  $\frac{9}{36}$  or  $\frac{1}{4}$  (ii)  $\frac{10}{36}$  or  $\frac{5}{18}$  (iii)  $\frac{8}{36}$  or  $\frac{2}{9}$

(iv)  $\frac{11}{36}$  (v)  $\frac{20}{36}$  or  $\frac{5}{9}$

[ 5 marks ]

### Answer 5

(a)  $\frac{3}{7}$  (b)  $\frac{5}{7}$

[ 1, 1 marks ]

**Answer 6**

**( a )**

|                                  |          | <b>B L U E</b> |          |          |          |          |          |
|----------------------------------|----------|----------------|----------|----------|----------|----------|----------|
| <b>G<br/>R<br/>E<br/>E<br/>N</b> |          | <b>1</b>       | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> | <b>6</b> |
|                                  | <b>1</b> | <b>1</b>       | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> | <b>6</b> |
|                                  | <b>2</b> | <b>2</b>       | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> | <b>6</b> |
|                                  | <b>3</b> | <b>3</b>       | <b>3</b> | <b>3</b> | <b>4</b> | <b>5</b> | <b>6</b> |
|                                  | <b>4</b> | <b>4</b>       | <b>4</b> | <b>4</b> | <b>4</b> | <b>5</b> | <b>6</b> |
|                                  | <b>5</b> | <b>5</b>       | <b>5</b> | <b>5</b> | <b>5</b> | <b>5</b> | <b>6</b> |
|                                  | <b>6</b> | <b>6</b>       | <b>6</b> | <b>6</b> | <b>6</b> | <b>6</b> | <b>6</b> |

**[ 5 marks ]**

**( b )    ( i )     $\frac{11}{36}$**

**( ii )     $\frac{25}{36}$**

**( iii )     $\frac{1}{9}$**

**( iv )     $\frac{15}{36}$  or  $\frac{5}{12}$**

**[ 4 marks ]**