

# Fully-worked Solutions

## Practice 2

### Formative Practice

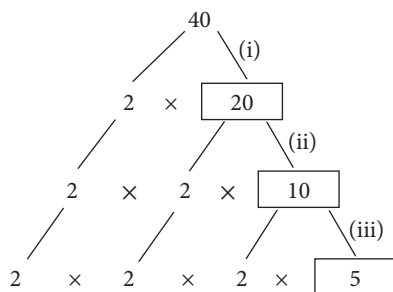
- 1 7 is a factor of 21.  
21 is a factor of 63.  
 $\therefore m = 21$

Answer: **B**

- 2 (a)  $145 \div 9 = 16.111 \dots$   
9 is not a factor of 145.
- (b)  $91 \div 13 = 7$   
13 is a factor of 91.
- (c)  $51 \div 3 = 17$   
3 is a factor of 51.
- (d)  $85 \div 7 = 12$  remainder 1  
7 is not factor of 85.

Number	Factors
(a) 18	1, (2), (3), 6, 9, 18
(b) 42	1, (2), (3), 6, (7), 14, 21, 42
(c) 63	1, (3), (7), 9, 21, 63
(d) 95	1, (5), (19), 95

- 4 (a)



- (b) The prime factors of 40 are 2, 5.

- 5 (a)
- |   |     |
|---|-----|
| 2 | 252 |
| 2 | 126 |
| 3 | 63  |
| 3 | 21  |
| 7 | 7   |
| 1 |     |

All the prime factors of 252 are 2, 3, 7.

- (b)  $252 = 2 \times 2 \times 3 \times 3 \times 7$
- 6 (a) (i) 1, 2, 5, 10 (ii) 1, 3, 5, 15  
(iii) 1, 2, 4, 5, 10, 20 (iv) 1, 5, 7, 35
- (b) (i) 1, 2, 5, 10 (ii) 1, 5
- 7 (a) (i) 1, 2, 3, 4, 6, 8, 12, 24  
(ii) 1, 2, 4, 8, 16, 32

- (b) 8

- 8 (a)
- |   |            |
|---|------------|
| 2 | 18, 72, 90 |
| 3 | 9, 36, 45  |
| 3 | 3, 12, 15  |
|   | 1, 4, 5    |

- (b)  $2 \times 3 \times 3 = 18$

The highest common factor of 18, 72 and 90 is 18.

- 9
- |   |               |
|---|---------------|
| 2 | 300, 444, 708 |
| 2 | 150, 222, 354 |
| 3 | 75, 111, 177  |
|   | 25, 37, 59    |

The possible maximum number of matches  
 $= 2 \times 2 \times 3 = 12$

- 10 (a) 3, 6, 9, 12 (b) 84, 119, 154

- 11 (a)  $58 \div 4 = 14.5$   
58 is not a multiple of 4.
- (b)  $90 \div 5 = 18$   
90 is a multiple of 5.
- (c)  $164 \div 6 = 27\frac{1}{3}$   
164 is not a multiple of 6.
- (d)  $252 \div 9 = 28$   
252 is a multiple of 9.

- 12 (a) (i) 2, 4, 6, 8, 10, 12  
(ii) 4, 8, 12, 16, 20, 24  
(iii) 6, 12, 18, 24, 30, 36
- (b) (i) 4, 8, 12, 16 (ii) 12, 24, 36, 48

- 13 A:
- |   |            |
|---|------------|
| 2 | 12, 48, 60 |
| 2 | 6, 24, 30  |
| 3 | 3, 12, 15  |
| 2 | 1, 4, 5    |
| 2 | 1, 2, 5    |
| 5 | 1, 1, 5    |
|   | 1, 1, 1    |

The lowest common multiple of 12, 48 and 60  
 $= 2 \times 2 \times 3 \times 2 \times 2 \times 5$   
 $= 240$

- B:
- |   |            |
|---|------------|
| 2 | 24, 48, 60 |
| 2 | 12, 24, 30 |
| 2 | 6, 12, 15  |
| 2 | 3, 6, 15   |
| 3 | 3, 3, 15   |
| 5 | 1, 1, 5    |
|   | 1, 1, 1    |

The lowest common multiple of 24, 48 and 60  
 $= 2 \times 2 \times 2 \times 2 \times 3 \times 5$   
 $= 240$

C:

2	36, 48, 60
2	18, 24, 30
2	9, 12, 15
2	9, 6, 15
3	9, 3, 15
3	3, 1, 5
5	1, 1, 5
	1, 1, 1

The lowest common multiple of 36, 48 and 60  
 $= 2 \times 2 \times 2 \times 2 \times 3 \times 3 \times 5$   
 $= 720$

D:

2	36, 48, 72
2	18, 24, 36
2	9, 12, 18
2	9, 6, 9
3	9, 3, 9
3	3, 1, 3
	1, 1, 1

The lowest common multiple of 36, 48 and 72  
 $= 2 \times 2 \times 2 \times 2 \times 3 \times 3$   
 $= 144$

Answer: C

14 (a) (i)

2	4, 9, 12, 15
2	2, 9, 6, 15
3	1, 9, 3, 15
3	1, 3, 1, 5
5	1, 1, 1, 5
	1, 1, 1, 1

(ii) The lowest common multiple of 4, 9, 12 and 15  
 $= 2 \times 2 \times 3 \times 3 \times 5$   
 $= 180$

(b) (i)  $10 = 2 \times 5$ ,  $25 = 5 \times 5$ ,  $35 = 5 \times 7$

(ii) The lowest common multiple of 10, 25 and 35  
 $= 2 \times 5 \times 5 \times 7$   
 $= 350$

15  $75 = 3 \times 5 \times 5$

3	15, w
5	5, w
5	1, w
	1, 1

$w = 25$  or  $w = 75$

### Summative Practice

1 Factors of 42: 1, 2, 3, 6, 7, 14, 21, 42  
 Three other factors of 42: 1, 7, 21  
 Answer: A

2 A:  $36 \div 8 = 4.5$

B:  $48 \div 9 = 5\frac{1}{3}$

C:  $63 \div 8 = 7.875$

D:  $144 \div 8 = 18$   
 $144 \div 9 = 16$   
 $k = 144$

Answer: D

3

2	308
2	154
7	77
11	11
	1

All the prime factors of 308 are 2, 7, 11.

Answer: D

4

2	5, 15, 20
2	5, 15, 10
5	5, 15, 5
3	1, 3, 1
	1, 1, 1

The lowest common multiple of 5, 15 and 20  
 $= 2 \times 2 \times 5 \times 3$   
 $= 60$

Answer: B

5

2	36, 54, 90
3	18, 27, 45
3	6, 9, 15
	2, 3, 5

The highest common factor of 36, 54 and 90  
 $= 2 \times 3 \times 3$   
 $= 18$

Answer: D

6 (a)

Number	First ten multiples
2	2, 4, 6, 8, 10, 12, 14, 16, 18, 20
3	3, 6, 9, 12, 15, 18, 21, 24, 27, 30
5	5, 10, 15, 20, 25, 30, 35, 40, 45, 50
6	6, 12, 18, 24, 30, 36, 42, 48, 54, 60

(b) 30, 60, 90, 120, 150

7 Prime factors of

26: 2, 13

35: 5, 7

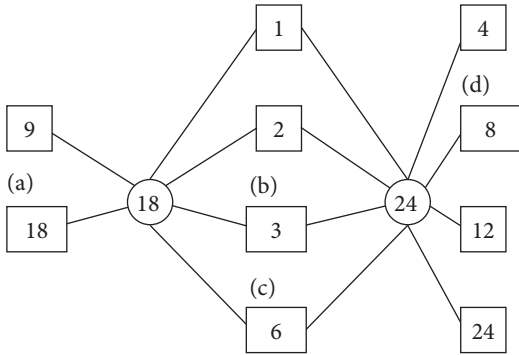
66: 2, 3, 11

78: 2, 3, 13

84: 2, 3, 7

The possible numbers are 35, 84.

8



9 (a)

$$\begin{array}{r|l} 2 & 18, 24, 42, 60 \\ 3 & 9, 12, 21, 30 \\ & 3, 4, 7, 10 \end{array}$$

(b)  $2 \times 3 = 6$

The highest common factor of 18, 24, 42 and 60 is 6.

10 (a) (i) 1, 2, 3, 5, 6, 10, 15, 30

(ii) 1, 3, 5, 9, 15, 45

(iii) 1, 2, 3, 4, 5, 6, 10, 12, 15, 20, 30, 60

(b) The common factors of 30, 45 and 60 are 1, 3, 5, 15.

11

$$\begin{array}{r|l} 2 & 15, 12, 18 \\ 2 & 15, 6, 9 \\ 3 & 15, 3, 9 \\ 3 & 5, 1, 3 \\ 5 & 5, 1, 1 \\ & 1, 1, 1 \end{array}$$

$$2 \times 2 \times 3 \times 3 \times 5 = 180$$

The time interval is 180 seconds.