

## 4.3 Answers

### 4.3.1 Solutions to 4.2 Exercise

#### Answer 1

7 is not a factor of 144 because 144 does not divide by 7 exactly; there is a remainder. This can be shown by bus stop division.

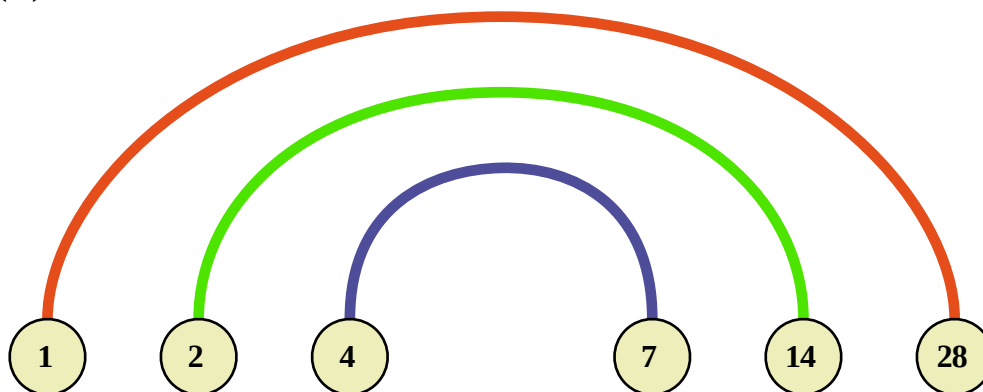
$$\frac{144}{7} \Rightarrow 7 \overline{) 144} \Rightarrow 7 \overline{) \begin{array}{r} 0 \ 2 \ 0 \\ 1 \ 4 \ 4 \end{array}} r \ 4 \Rightarrow 20 + \frac{4}{7}$$

$$\frac{144}{7} = 20 \frac{4}{7}$$

[ 2 marks ]

#### Answer 2

(i)



[ 2 marks ]

(ii) {Factors of 28} = {1, 2, 4, 7, 14, 28}

[ 1 mark ]

(iii) 3 is not a factor of 28 because 28 does not divide by 3 exactly; there is a remainder. This can be shown by bus stop division.

$$\frac{28}{3} \Rightarrow 3 \overline{) 28} \Rightarrow 3 \overline{) \begin{array}{r} 0 \ 9 \\ 2 \ 28 \end{array}} r \ 1 \Rightarrow 9 + \frac{1}{3}$$

$$\frac{28}{3} = 9 \frac{1}{3}$$

[ 2 marks ]

**Answer 3**

- (i) 7 is not a factor of 75 because 75 does not divide by 7 exactly; there is a remainder. This can be shown by bus stop division.

$$\frac{75}{7} \Rightarrow 7 \overline{) 75} \Rightarrow 7 \overline{) 105}^r 5 \Rightarrow 10 + \frac{5}{7}$$

$$\frac{75}{7} = 10 \frac{5}{7}$$

[ 2 marks ]

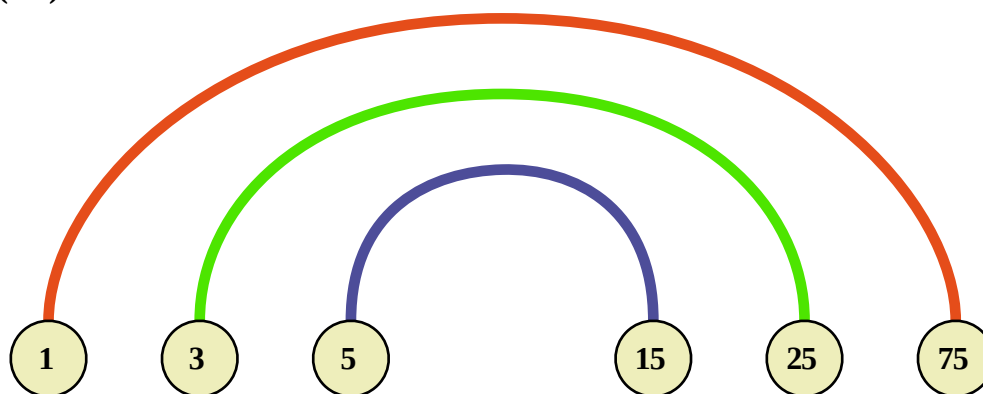
- (ii) Numbers that divide by 2 exactly end in 0 or 2 or 4 or 6 or 8.  
As 75 ends in a 5 it does not divide by 2 exactly so 2 is not a factor of 75.

[ 2 marks ]

- (iii) {Multiples of 7} = {7, 14, 21, 28, 35, 42, 49, 56, 63, 70, ...}

[ 2 marks ]

- (iv)



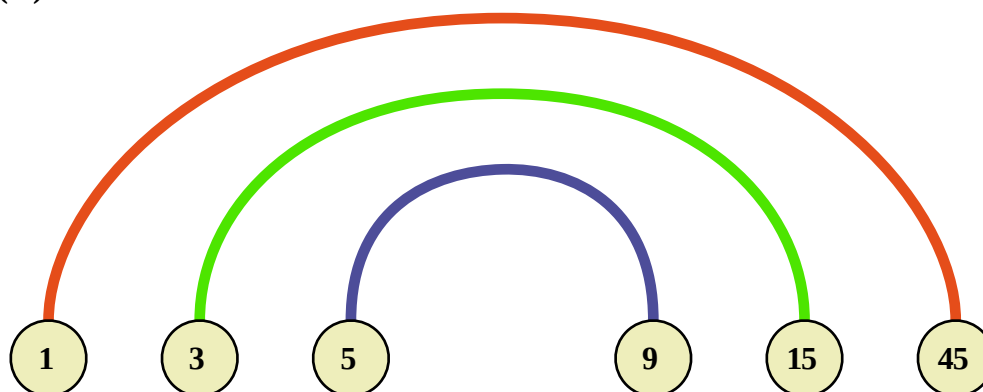
[ 2 marks ]

- (v) {Factors of 75} = {1, 3, 5, 15, 25, 75}

[ 1 mark ]

**Answer 4**

- (i)



[ 4 marks ]

- (ii) {Factors of 45} = {1, 3, 5, 9, 15, 45}

[ 1 mark ]

### Answer 5

- (i) Numbers that divide by 5 exactly end in a 0 or a 5.  
As 56 ends in a 6 it does not divide by 5 exactly so 5 is not a factor of 56. [ 2 marks ]
- (ii) {Multiples of 5} = {5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, ... } [ 2 marks ]
- (iii) Numbers that divide by 3 exactly have a sum of digits that divides by 3.  
As 56 has a sum of digits given by,  
 $5 + 6 \Rightarrow 11 \Rightarrow 1 + 1 = 2$   
and 2 does not divide by 3 nor does 56 so 3 is not a factor of 56. [ 2 marks ]
- (iv) {Multiples of 3} = {3, 6, 9, 12, 15, 18, 21, 24, 27, ... } [ 2 marks ]
- (v)



- (vi) {Factors of 56} = {1, 2, 4, 7, 8, 14, 28, 56} [ 4 marks ]
- [ 1 mark ]

### Answer 6

- (i)
- 
- [ 5 marks ]
- (ii) {Factors of 63} = {1, 3, 7, 9, 21, 63} [ 1 mark ]

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Teachers may obtain detailed worked solutions to the exercises by email from [mhh@shrewsbury.org.uk](mailto:mhh@shrewsbury.org.uk)