

8.2 Answers

8.2.1 Solutions to 8.2 The Revision

Answer 1

Freddie is not correct.

There are an odd number of squares, 25, which does not have 2 as a factor.

Freddie eats the 13 lilac squares, George the 12 pink.

[3 marks]

Answer 2

(i) $\{\text{Multiples of 6}\} = \{6, 12, 18, 24, 30, 36, \dots\}$

[1 mark]

(ii) $\{\text{Multiples of 9}\} = \{9, 18, 27, 36, 45, 54, \dots\}$

[1 mark]

(iii) $\text{lcm}\{6,9\} = 18$

[1 mark]

(iv) $\frac{1}{6} + \frac{4}{9} = \frac{1}{6} \times 1 + \frac{4}{9} \times 1$ Step 1: Multiply by 1
 $= \frac{1}{6} \times \frac{3}{3} + \frac{4}{9} \times \frac{2}{2}$ Step 2: Use $\text{lcm}\{9,24\}$ is 72
 $= \frac{3}{18} + \frac{8}{18}$ Step 3: Do the two multiplications
 $= \frac{11}{18}$ Step 4: Do the easy addition

[7 marks]

Answer 3

(i) $\frac{8}{3} \Rightarrow 3 \overline{)8} \Rightarrow 3 \overline{)8}^2 \Rightarrow 2 \frac{2}{3}$

[2 marks]

(ii) $\frac{57}{5} \Rightarrow 5 \overline{)57} \Rightarrow 5 \overline{)57}^2 \Rightarrow 11 \frac{2}{5}$

[2 marks]

(iii) $\frac{85}{7} \Rightarrow 7 \overline{)85} \Rightarrow 7 \overline{)85}^1 \Rightarrow 12 \frac{1}{7}$

[2 marks]

(iv) $\frac{513}{4} \Rightarrow 4 \overline{)513} \Rightarrow 4 \overline{)513}^1 \Rightarrow 128 \frac{1}{4}$

[2 marks]

Answer 4

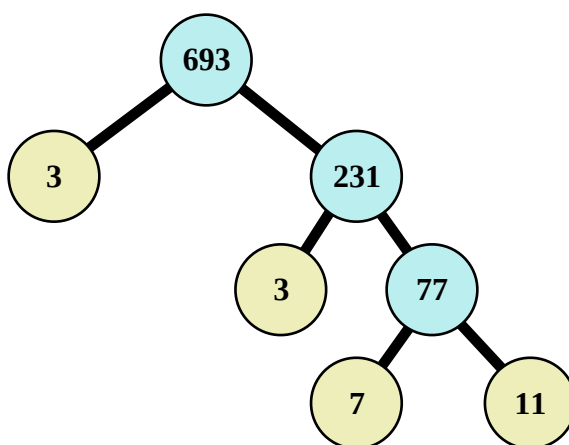
- (i) Numbers that divide by 5 exactly end in a 0 or a 5.
As 154 ends in a 4 it does not divide by 5 exactly so 5 is not a factor of 154.
[2 marks]
- (ii) {Multiples of 5} = {5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, ... }
[2 marks]
- (iii) Numbers that divide by 3 exactly have a sum of digits that divides by 3.
As 154 has a sum of digits given by,
 $1 + 5 + 4 \Rightarrow 10 \Rightarrow 1 + 0 = 1$
and 1 does not divide by 3 nor does 154 so 3 is not a factor of 154.
[2 marks]
- (iv) {Multiples of 3} = {3, 6, 9, 12, 15, 18, 21, 24, 27, ... }
[2 marks]
- (v)



- (vi) {Factors of 154} = {1, 2, 7, 11, 14, 22, 77, 154}
[3 marks]
- [1 mark]

Answer 5

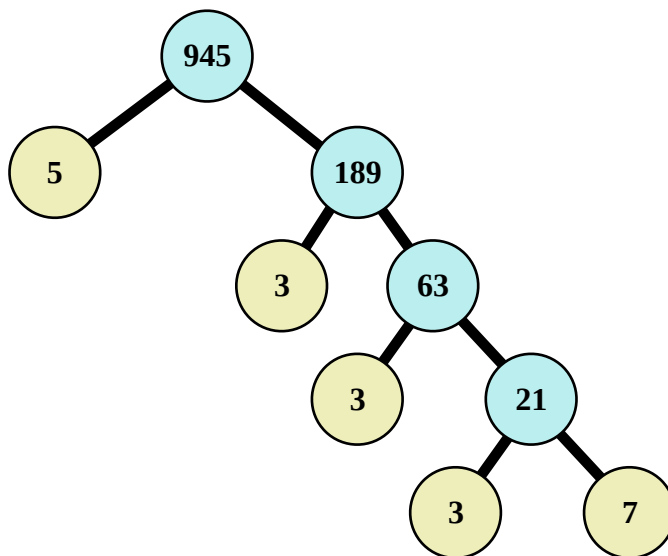
- (a) (i)



$$693 = 3 \times 3 \times 7 \times 11$$

[3 marks]

(ii)



$$945 = 3 \times 3 \times 3 \times 5 \times 7$$

[3 marks]

(b)

$$\begin{aligned}\frac{693}{945} &= \frac{3 \times 3 \times 7 \times 11}{3 \times 3 \times 3 \times 5 \times 7} \\ &= \frac{11}{15}\end{aligned}$$

[4 marks]

Answer 6

$$\begin{aligned}\text{(i)} \quad 5\frac{2}{7} &= \frac{5 \times 7 + 2}{7} \\ &= \frac{35 + 2}{7} \\ &= \frac{37}{7}\end{aligned}$$

$$\begin{aligned}\text{(ii)} \quad 11\frac{3}{4} &= \frac{11 \times 4 + 3}{4} \\ &= \frac{44 + 3}{4} \\ &= \frac{47}{4}\end{aligned}$$

$$\begin{aligned}\text{(iii)} \quad 53\frac{5}{7} &= \frac{53 \times 7 + 5}{7} \\ &= \frac{60 + 5}{7} \\ &= \frac{65}{7}\end{aligned}$$

$$\begin{aligned}\text{(iv)} \quad 241\frac{1}{3} &= \frac{241 \times 3 + 1}{3} \\ &= \frac{723 + 1}{3} \\ &= \frac{724}{3}\end{aligned}$$

[8 marks]

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Teachers may obtain detailed worked solutions to the exercises by email from mhh@shrewsbury.org.uk