

9.2 Answers

9.2.1 Solutions to 9.2 The Test

Answer 1

They do not get a third each because there are 20 squares and 20 does not divide by 3.

Annabella eats 7 lilac squares, Frida 7 pink and Maddie 6 yellow.

[3 marks]

Answer 2

(i) $\{\text{Multiples of } 20\} = \{20, 40, 60, 80, 100, 120, \dots\}$

[1 mark]

(ii) $\{\text{Multiples of } 25\} = \{25, 50, 75, 100, 125, 150, \dots\}$

[1 mark]

(iii) $\text{lcm}\{20, 25\} = 100$

[1 mark]

(iv)
$$\begin{aligned} \frac{3}{20} + \frac{4}{25} &= \frac{3}{20} \times \frac{5}{5} + \frac{4}{25} \times \frac{4}{4} && \text{Step 1: Multiply by 1} \\ &= \frac{3}{20} \times \frac{5}{5} + \frac{4}{25} \times \frac{4}{4} && \text{Step 2: Use } \text{lcm}\{20, 25\} \text{ is } 100 \\ &= \frac{15}{100} + \frac{16}{100} && \text{Step 3: Do the two multiplications} \\ &= \frac{31}{100} && \text{Step 4: Do the easy addition} \end{aligned}$$

[7 marks]

Answer 3

(i) $\frac{23}{4} \Rightarrow 4 \overline{) 23} \Rightarrow 4 \overline{) 23}^{\text{r } 3} \Rightarrow 5 \frac{3}{4}$

[2 marks]

(ii) $\frac{79}{7} \Rightarrow 7 \overline{) 79} \Rightarrow 7 \overline{) 79}^{\text{r } 2} \Rightarrow 11 \frac{2}{7}$

[2 marks]

(iii) $\frac{88}{5} \Rightarrow 5 \overline{) 88} \Rightarrow 5 \overline{) 88}^{\text{r } 3} \Rightarrow 17 \frac{3}{5}$

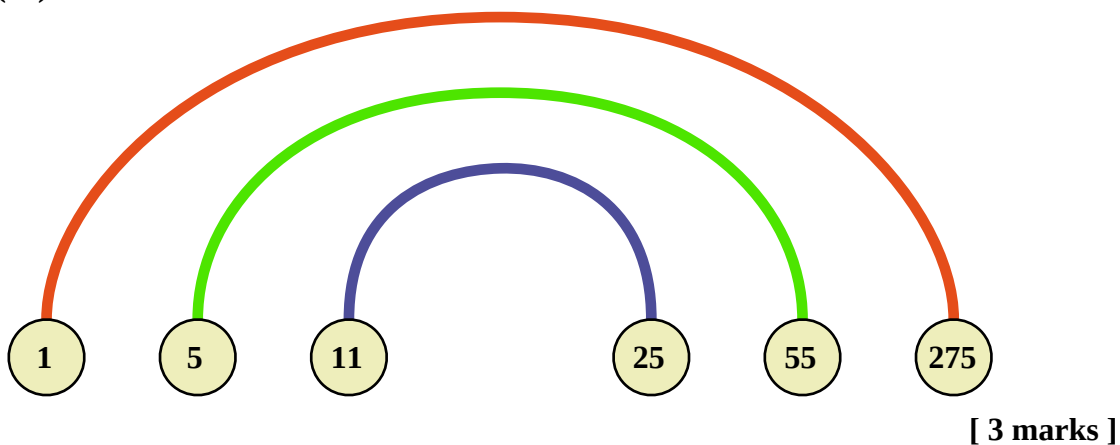
[2 marks]

(iv) $\frac{517}{5} \Rightarrow 5 \overline{) 517} \Rightarrow 5 \overline{) 517}^{\text{r } 2} \Rightarrow 103 \frac{2}{5}$

[2 marks]

Answer 4

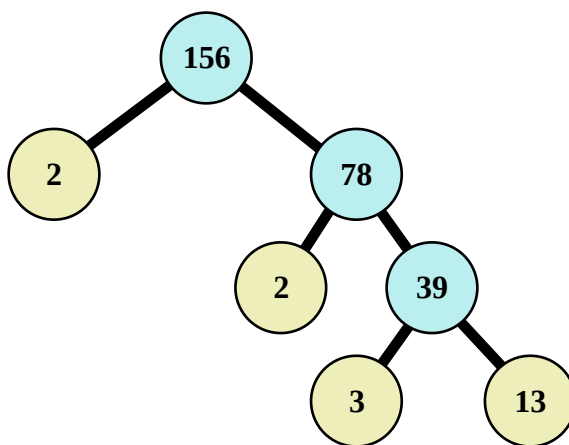
- (i) Numbers that divide by 2 exactly end in a 0 or 2 or 4 or 6 or 8.
As 275 ends in a 5 it does not divide by 2 exactly so 2 is not a factor of 275.
[2 marks]
- (ii) {Multiples of 2} = {2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, ... }
[2 marks]
- (iii) Numbers that divide by 3 exactly have a sum of digits that divides by 3.
As 275 has a sum of digits given by,
 $2 + 7 + 5 \Rightarrow 14 \Rightarrow 1 + 4 = 5$
and 5 does not divide by 3 nor does 275 so 3 is not a factor of 275.
[2 marks]
- (iv) {Multiples of 3} = {3, 6, 9, 12, 15, 18, 21, 24, 27, ... }
[2 marks]
- (v)



- (vi) {Factors of 275} = {1, 5, 11, 25, 55, 275}
[1 mark]

Answer 5

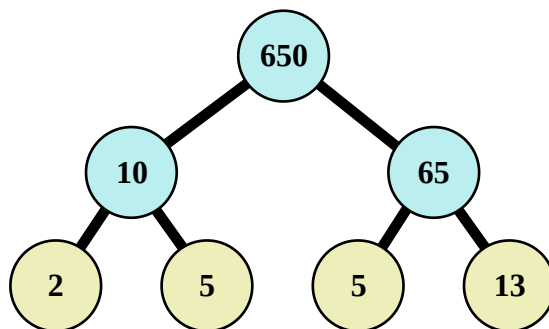
- (a) (i)



$$156 = 2 \times 2 \times 3 \times 13$$

[3 marks]

(ii)



$$650 = 2 \times 5 \times 5 \times 13$$

[3 marks]

(b)

$$\begin{aligned}\frac{156}{650} &= \frac{2 \times 2 \times 3 \times 13}{2 \times 5 \times 5 \times 13} \\ &= \frac{6}{25}\end{aligned}$$

[4 marks]

Answer 6

$$\begin{aligned}\text{(i)} \quad 6\frac{2}{3} &= \frac{6 \times 3 + 2}{3} \\ &= \frac{18 + 2}{3} \\ &= \frac{20}{3}\end{aligned}$$

$$\begin{aligned}\text{(ii)} \quad 14\frac{3}{4} &= \frac{14 \times 4 + 3}{4} \\ &= \frac{56 + 3}{4} \\ &= \frac{59}{4}\end{aligned}$$

$$\begin{aligned}\text{(iii)} \quad 71\frac{5}{7} &= \frac{71 \times 7 + 5}{7} \\ &= \frac{497 + 5}{7} \\ &= \frac{502}{7}\end{aligned}$$

$$\begin{aligned}\text{(iv)} \quad 351\frac{1}{3} &= \frac{351 \times 3 + 1}{3} \\ &= \frac{1053 + 1}{3} \\ &= \frac{1054}{3}\end{aligned}$$

[8 marks]