Test answers - Fractions: add, subtract, multiply and divide

Year: Year 6 · Duration: 40 minutes · /20

Answer to Question 1 (3 marks)

a. The highest common factor of 28 and 42 is 14: 28 ÷ 14 = 2 and 42 ÷ 14 = 3, giving $\frac{2}{3}$. (1 mark)
b. 4 × 5 = 20, so multiply the numerator by 5 as well: 3 × 5 = 15, giving $\frac{15}{20}$. (1 mark)
c. Use twentieths: $\frac{7}{10} = \frac{14}{20}$ and $\frac{3}{4} = \frac{15}{20}$. 15 > 14, so $\frac{3}{4}$ **is bigger**. (1 mark)

Answer to Question 2 (4 marks)

a. Change fifths to tenths: $\frac{4}{10} + \frac{3}{10} = \frac{7}{10}$. (1 mark)
b. The lowest common multiple of 8 and 3 is 24: $\frac{21}{24} - \frac{8}{24} = \frac{13}{24}$. (1 mark)
c. Add the wholes (3) and the fractions in twelfths: $\frac{8}{12} + \frac{9}{12} = \frac{17}{12} = 1\frac{5}{12}$. Total $4\frac{5}{12}$. (1 mark)
d. Use sixths: $4\frac{1}{6} - 1\frac{4}{6}$. Exchange a whole: $3\frac{7}{6} - 1\frac{4}{6} = 2\frac{3}{6} = 2\frac{1}{2}$. (1 mark)

Answer to Question 3 (4 marks)

a. Multiply tops and bottoms: $\frac{15}{45}$, which simplifies (÷15) to $\frac{1}{3}$. (1 mark)
b. One eighth of 72 is 9, so five eighths is 9 × 5 = **45**. (1 mark)
c. Dividing by 6 makes the pieces 6 times smaller: $\frac{3}{24} = \frac{1}{8}$. (1 mark)
d. $2\frac{1}{4} = \frac{9}{4}$, and $\frac{9}{4} \times \frac{2}{3} = \frac{18}{12} = 1\frac{1}{2}$. (1 mark)

Answer to Question 4 (4 marks)

a. Write Sunday's share in eighths, $\frac{2}{8}$, and add Saturday's $\frac{3}{8}$: together $\frac{5}{8}$ of the cake has gone. (1 mark)
b. Take the eaten part from the whole cake, $\frac{8}{8}$: 8 − 5 = 3 eighths remain, $\frac{3}{8}$. (1 mark)
c. One third of three eighths is one eighth (3 eighths shared into 3 equal parts), so the neighbour gets $\frac{1}{8}$ of the whole cake. (2 marks)

Answer to Question 5 (5 marks)

a. $\frac{3}{8} + \frac{1}{4} = \frac{5}{8}$, so adults are $1 - \frac{5}{8} = \frac{3}{8}$. (1 mark)
b. $\frac{3}{8}$ of 240 = 30 × 3 = **90** children. (1 mark)
c. Adults: 90. $\frac{2}{5}$ of 90: 90 ÷ 5 = 18, 18 × 2 = **36** adults. (1 mark)
d. Total money: 240 × £2.50 = £600. $\frac{3}{5}$ of £600 = 120 × 3 = **£360**. (2 marks)