Test answers - Adding, subtracting and multiplying fractions

Year: Year 5 · Duration: 40 minutes · /20

Answer to Question 1 (4 marks)

(a) The denominators are the same, so add the numerators: 2 + 5 = 7 ninths, $\frac{7}{9}$. (1 mark)

(b) Same denominators again: 7 − 3 = 4 eighths, $\frac{4}{8}$, which simplifies to $\frac{1}{2}$. (1 mark)

(c) Change quarters to eighths: $\frac{3}{4} = \frac{6}{8}$. Then $\frac{6}{8} + \frac{5}{8} = \frac{11}{8} = 1\frac{3}{8}$. (1 mark)

(d) Change thirds to sixths: $\frac{1}{3} = \frac{2}{6}$. Then $\frac{5}{6} - \frac{2}{6} = \frac{3}{6} = \frac{1}{2}$. (1 mark)

Answer to Question 2 (4 marks)

(a) Whole numbers: 2 + 1 = 3. Fractions: $\frac{1}{3} + \frac{1}{3} = \frac{2}{3}$. Answer: $3\frac{2}{3}$. (1 mark)

(b) 3 + 1 = 4 and $\frac{3}{4} + \frac{2}{4} = \frac{5}{4} = 1\frac{1}{4}$. Answer: $5\frac{1}{4}$. (1 mark)

(c) $4\frac{2}{4} - 1\frac{3}{4} = 3\frac{6}{4} - 1\frac{3}{4} = 2\frac{3}{4}$. (1 mark)

(d) $5 = 4\frac{5}{5}$. $4\frac{5}{5} - 2\frac{2}{5} = 2\frac{3}{5}$. (1 mark)

Answer to Question 3 (4 marks)

(a) Multiply the numerator by 4: 4 × 2 = 8, giving $\frac{8}{5} = 1\frac{3}{5}$. (1 mark)

(b) 6 × 3 = 18 quarters, $\frac{18}{4}$, which is 4 wholes and 2 quarters: $4\frac{1}{2}$. (1 mark)

(c) Multiply the whole and the fraction separately: 3 × 2 = 6 and 3 × $\frac{1}{3}$ = 1, so 6 + 1 = **7**. (1 mark)

(d) Find one fifth first: 40 ÷ 5 = 8. Three fifths is 8 × 3 = **24**. (1 mark)

Answer to Question 4 (3 marks)

(a) Ben added the denominators. The size of the pieces (fifths) does not change. (1 mark)

(b) $\frac{3}{5}$. (1 mark)

(c) $\frac{1}{2} = \frac{2}{4}$, and $\frac{2}{4} + \frac{1}{4} = \frac{3}{4}$, which is more than $\frac{1}{2}$. But $\frac{2}{6} = \frac{1}{3}$ is less than $\frac{1}{2}$, so it cannot be right. The correct answer is $\frac{3}{4}$. (1 mark)

Answer to Question 5 (5 marks)

(a) Whole numbers: 6 + 7 + 5 = 18. Fractions: $\frac{2}{4} + \frac{1}{4} + \frac{3}{4} = \frac{6}{4} = 1\frac{1}{2}$. Total = $19\frac{1}{2}$ **miles**. (2 marks)

(b) $26 - 19\frac{1}{2} = 6\frac{1}{2}$ **miles**. (1 mark)

(c) $4 \times \frac{13}{2} = \frac{52}{2}$ = **26 miles**. (1 mark)

(d) It is exactly 26 miles, so the difference is **0 miles**: it is the same distance. (1 mark)