

GCSE Maths: Multi-step and reverse fraction problems (Higher): answers

GCSE Maths - Fractions - Higher - Lesson 3.2

Answers. Final answers to the worksheet questions. Full step-by-step solutions for every question are free at websink.site/gcse/maths/ch03-fractions/higher/multi-step-and-reverse-fraction-problems/

Exercise 3B Multi-step and reverse problems Non-calculator

1 Increase or decrease each amount by the fraction given.

- (a) Increase 48 by $\frac{1}{6}$

Answer: 56

- (b) Decrease 90 by $\frac{2}{9}$

Answer: 70

- (c) Increase 36 by $\frac{3}{4}$

Answer: 63

- (d) Decrease 250 by $\frac{3}{10}$

Answer: 175

2 After the change shown, the amount is given. Find the original amount.

- (a) Increased by $\frac{1}{5}$ to give 60

Answer: 50

- (b) Decreased by $\frac{1}{4}$ to give 45

Answer: 60

- (c) Increased by $\frac{3}{8}$ to give 110

Answer: 80

- (d) Decreased by $\frac{2}{5}$ to give 42

Answer: 70

3 A is $\frac{3}{5}$ of B, and B is $\frac{2}{3}$ of C. (a) What fraction of C is A? (b) Work out A when C = 60.

- (a) fraction

Answer: $\frac{2}{5}$

- (b) A

Answer: 24

- 4 The ratio of boys to girls in a club is 3 : 5. There are 24 boys. (a) What fraction of the club are boys? (b) How many girls are there?

(a) fraction boys

Answer: $\frac{3}{8}$

(b) girls

Answer: 40

- 5 Ali reads $\frac{2}{5}$ of a book on Monday and $\frac{1}{3}$ of the remaining pages on Tuesday. He has 36 pages left. How many pages are in the book?

Answer: After Monday $\frac{3}{5}$ left; Tuesday reads $\frac{1}{5}$; left $\frac{2}{5} = 36$. Book = 90 pages.

- 6 A tank is $\frac{3}{5}$ full. After 12 litres are added it is $\frac{4}{5}$ full. Work out the capacity of the tank.

Answer: $\frac{1}{5} = 12$ litres, so capacity = 60 litres.

- 7 Pipe A fills a pool in 4 hours, pipe B in 12 hours. How long do they take together?

Answer: $\frac{1}{4} + \frac{1}{12} = \frac{4}{12} = \frac{1}{3}$ per hour, so 3 hours.

- 8 Mia says "Increasing by $\frac{1}{5}$ and then decreasing by $\frac{1}{5}$ gets you back to where you started." Is she right? Show working.

Answer: No. $\frac{6}{5} \times \frac{4}{5} = \frac{24}{25}$, which is less than 1.

- 9 A shop reduces a jacket by $\frac{1}{3}$. In a further sale it is reduced by $\frac{1}{4}$ of the sale price. The final price is £60. What was the original price?

Answer: $\frac{2}{3} \times \frac{3}{4} = \frac{1}{2}$, so original = £120.

- 10 **Challenge.** Sam spends $\frac{1}{4}$ of his money, then $\frac{2}{5}$ of what is left, then $\frac{1}{3}$ of what is left after that. He has £18 remaining. How much did he start with?

Answer: Multipliers $\frac{3}{4} \times \frac{3}{5} \times \frac{2}{3} = \frac{3}{10} \cdot \frac{3}{10} = 18$, so he started with £60.