

## Fractions and percentages (Junior UKMT)

These questions must be attempted without a calculator

Topics covered in the questions below may not necessarily be from the topic of the title.

1. What is 40% of 50% of £60?

- A £7                      B £8                      C £12                      D £15                      E £20

2. What is half of 199?

- A  $94\frac{1}{2}$                       B 95                      C  $95\frac{1}{2}$                       D 99                      E  $99\frac{1}{2}$

3. All of the Forty Thieves were light-fingered, but only two of them were caught red-handed.

What percentage is that?

- A 2                      B 5                      C 10                      D 20                      E 50

4. In 1833 a ship arrived in Calcutta with 120 tons remaining of its cargo of ice. One third of the original cargo was lost because it had melted on the voyage.

How many tons of ice was the ship carrying when it set sail?

- A 40                      B 80                      C 120                      D 150                      E 180

5. 48% of the pupils at a certain school are girls. 25% of the girls and 50% of the boys at this school travel to school by bus.

What percentage of the whole school travel by bus?

- A 37%                      B 38%                      C 62%                      D 73%                      E 75%

6. If the following fractions are arranged in increasing order of size, which one is in the middle?

- A  $\frac{1}{2}$                       B  $\frac{2}{3}$                       C  $\frac{3}{5}$                       D  $\frac{4}{7}$                       E  $\frac{5}{9}$

7. When the following fractions are put in their correct places on the number line, which fraction is in the middle?

A  $-\frac{1}{7}$       B  $\frac{1}{6}$       C  $-\frac{1}{5}$       D  $\frac{1}{4}$       E  $-\frac{1}{3}$

8. A solid wooden cube is painted blue on the outside. The cube is then cut into eight smaller cubes of equal size.

What fraction of the total surface area of these new cubes is blue?

A  $\frac{1}{8}$       B  $\frac{1}{3}$       C  $\frac{3}{8}$       D  $\frac{1}{2}$       E  $\frac{3}{4}$

9. A bottle contains 750ml of mineral water. Rachel drinks 50% more than Ross, and these two friends finish the bottle between them.

How much does Rachel drink?

A 250 ml      B 375 ml      C 400ml      D 450 ml      E 500 ml

10. Granny spends one third of her weekly pension on Thursday night, and one quarter of what remains on Friday.

What fraction of the original amount is left for her big night out on Saturday?

A  $\frac{1}{12}$       B  $\frac{2}{7}$       C  $\frac{5}{12}$       D  $\frac{1}{2}$       E  $\frac{11}{12}$

11. At halftime, Boarwarts Academy had scored all of the points so far in their annual match against Range Hill School. In the second half, each side scored three points. At the end of the match, Boarwarts Academy had scored 90% of the points.

What fraction of the points in the match was scored in the second half?

A  $\frac{3}{100}$       B  $\frac{3}{50}$       C  $\frac{1}{10}$       D  $\frac{9}{50}$       E  $\frac{1}{5}$