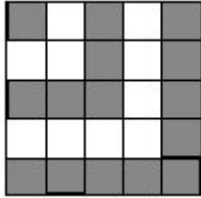


## Percentages (Intermediate UKMT)

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 percentage of the large 5 × 5 square is shaded?



- A 40%      B 60%      C  $66\frac{2}{3}\%$       D 75%      E 80%
2. “80% of the pupils asked preferred purple blazers, so purple blazers it is!”, announced the Head triumphantly – conveniently forgetting to mention that 80% of pupils of the school had not even been asked.
- What percentage of pupils had actually told the Head that they preferred purple?
- A 16%      B 20%      C 40%      D 64%      E 80%
3. What is the difference between 10% of one million and 10% of one thousand?
- A 9 900      B 9 990      C 90 900      D 99 900      E 999 900
4. What is 50% of 2006 plus 2006% of 50?
- A 1013.3      B 1053      C 1103.3      D 1504.5      E 2006
5. 6% of 6 plus 8% of 8 equals
- A 0.14      B 1      C 1.4      D 1.98      E 2

6. "20% off everything", screamed the sale posters. I paid £60. What would I have paid before the sale?

- A £60            B £66            C £72            D £75            E £80

7. Inspector Remorse estimates that he can solve the average murder in  $x$  hours, a bank robbery in half that time, and a car theft in one third of the time he takes to solve a bank robbery.

How many hours would he expect to take in solving two murders, six car thefts and four bank robberies?

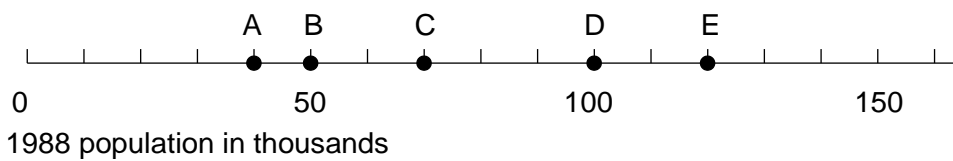
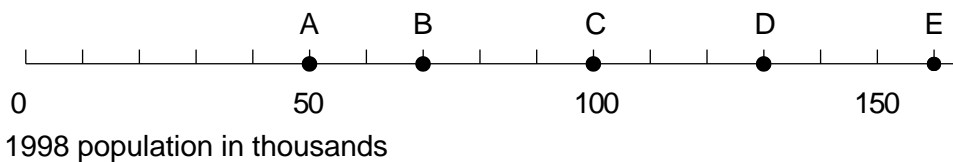
- A  $3x$             B  $5x$             C  $6x$             D  $7x$             E  $12x$

8. My bargain settee cost me £240 in a sale offering 25% reductions on all items.

How much did I save?

- A £25            B £40            C £60            D £80            E £100

9. The populations of five cities A, B, C, D, E in 1988 and 1998 are shown on these scales.



Which of the five cities showed the largest percentage increase in population from 1988 to 1998?

- A            B            C            D            E

10. After a year's training, Minnie Midriffe increased her average speed in the London Marathon by 25%.

By what percentage did her time decrease?

- A 50            B 30            C 20            D 10            E 5