

### **Four operations (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. Last year a newspaper reported that Turkish football team Sarigol Municipality transferred four of its players in return for a fee of 225 sacks of cement, needed to repair their stadium.

At the same rate of exchange, how many sacks of cement would be the transfer fee for a full team of eleven players and one reserve?

A 233                  B 450                  C 675                  D 900                  E 2700

2. Ima Divvy used her calculator and multiplied a number by 20 instead of by 2.

What could she now do to obtain the correct answer?

A divide by 20                          B divide by 40                          C multiply by 10  
D multiply by 0.5                          E multiply by 0.1

3. Old Martha has 5 children, each of whom has 4 children, each of whom has 3 children, each of whom is childless.

How many descendants does Old Martha have?

A 12                  B 20                  C 25                  D 60                  E 85

4. What is the value of 3 divided by  $\frac{1}{2}$ ?

A  $\frac{1}{6}$                   B  $\frac{2}{3}$                   C  $1\frac{1}{2}$                   D  $4\frac{1}{2}$                   E 6

5. The numbers 72, 8, 24, 10, 5, 45, 36, 15 are grouped in pairs so that the product of each pair is the same.

Which number is paired with 10?

A 36                  B 45                  C 24                  D 15                  E 72

6. Which is smallest?

A  $\frac{(2+3)}{(4+6)}$

B  $\frac{(2\div 3)}{(4\div 6)}$

C  $\frac{23}{46}$

D  $\frac{(2-3)}{(4-6)}$

E  $\frac{(2\times 3)}{(4\times 6)}$

7. Mickey Mouse wants to buy 20g of cheese. If cheese costs £3.41 per kilo, which calculation would Mickey need to do to find the cost, in pence, of 20g of cheese?

A  $3.41 \times 20$

B  $3.41 \div 20$

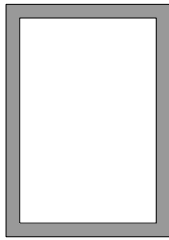
C  $3.41 \times 0.02$

D  $341 \div 0.02$

E  $341 \times 0.02$

8. A 30 cm x 40 cm page of a book includes a 2 cm margin on each side, as shown.

What percentage of the page is occupied by the margins?



A 14%

B 16%

C 18%

D 20%

E 22%

9. Inspector Remorse had a difficult year in 2004. A crime wave in Camford meant that he had 20% more cases to solve than in 2003, but his success rate dropped. In 2003, he solved 80% of his cases, but in 2004 he solved only 60% of them.

What was the percentage change in the number of cases he solved in 2004 compared with 2003?

A Down by 10%

B Down by 8%

C No change

D Up by 8%

E Up by 10%

10. Last year, on the television programme *Antiques Roadshow*, a painting was said to be worth £15 000 although the painting had originally cost only 50p.

As a percentage of the original price, what would be the approximate profit if the painting were to be sold for £15 000?

A 15 000 %

B 30 000 %

C 300 000 %

D 1 500 000 %

E 3 000 000 %