

# WELLINGTON COLLEGE

## I6+ ENTRANCE EXAMINATION MATHEMATICAL SKILLS PAPER

Time available: 30 minutes.

There are 40 marks available in total. The marks available for each question are indicated in the right-hand margin.

Special Instructions:

- You may not use a calculator in this exam. Leave answers as fractions or decimals where appropriate.
- Write all your answers in this booklet.
- Show your working; unsupported answers may not gain full credit.

Surname: \_\_\_\_\_

Forename: \_\_\_\_\_

School: \_\_\_\_\_

Date of birth: \_\_\_\_\_

1. Find the value of

(a)  $-3 \times -11$  [1]

(b)  $2.4 \times 5$  [1]

(c)  $7 \times 0.06 - 3 \times 0.02$  [1]

(d)  $6.9 - 2.1 + 3.7$  [1]

(e)  $\frac{2^3 - 4}{2}$  [1]

2. Simplify the following fractions.

(a)  $\frac{45}{60}$  [1]

(b)  $\frac{5}{8} - \frac{1}{3}$  [1]

3. Six children take a test in which they are asked to name the capitals of 20 countries of the world. Their scores are: 13, 7, 9, 10, 13 and 11.

(a) Find their median score. [1]

(b) Find the range of their scores. [1]

(c) A seventh student attempts the quiz. The mean of all the students scores (including the 7<sup>th</sup> student) is now 11. What was the 7<sup>th</sup> student's score? [3]

4. Solve the following equations

(a)  $3x - 2 = 13$  [1]

(b)  $\frac{25 - 4x}{3} = 3$  [2]

5. An investment rises by 20% in one year, but falls by 30% the next year. What overall percentage change is this? [3]

6. Sales tax at 15% is added onto a pre-tax price of £300. What is the total cost, including tax? [2]

7. The value of my car has fallen by 25% in the last year. If it is now worth £11250, what was it worth a year ago? [3]

8. Simplify the following expression so it may be written without brackets.

[2]

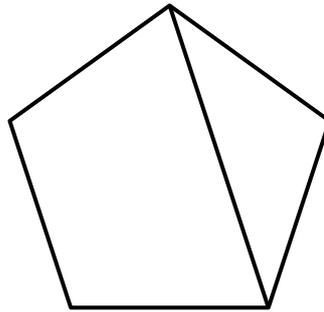
$$(x + 4)(2x - 1)$$

9. A local gym has male and female members. They are asked whether they ever use the club's sauna facilities.  
In total, of the 47 men present, 17 do not use the sauna.  
One-third of the sauna users are male.  
10 women do not use the sauna.  
How many members does the club have in total?

[6]

10. The line BD is added to the regular pentagon ABCDE.  
Find the size of angle  $\angle CBD$ .  
Explain your reasoning.

[3]  
[2]



11. Find the area of the triangle illustrated below.

[4]

