

COLFE'S SCHOOL  
SIXTH FORM ENTRANCE EXAMINATION

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**Mathematics**

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SAMPLE PAPER

Name: .....

School: .....

*Information*

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- There are 5 questions and the total mark for this paper is 24.
- You may **NOT** use a calculator.
- Answers without working may gain no credit.
- Where applicable you must state units.
- You must make your final answer clear.
- If you make a mistake, cross out with a ruled line and rewrite the answer.
- Read questions carefully and remember to check your work.



**Answer all 5 questions.**

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1. (a) Expand and simplify  $(2x - 3)(4 - x)$ .

..... (2)

(b) Solve  $2x = x^2$ .

..... (2)

(c) Make  $m$  the subject of the equation,  $mx + 6 = 3m - 2$ .

..... (3)

2. A basketball is reduced in price by 20% in a sale. It still doesn't sell well, so the shop reduces the price by a further 40%. By what percentage has the basketball been reduced in total?

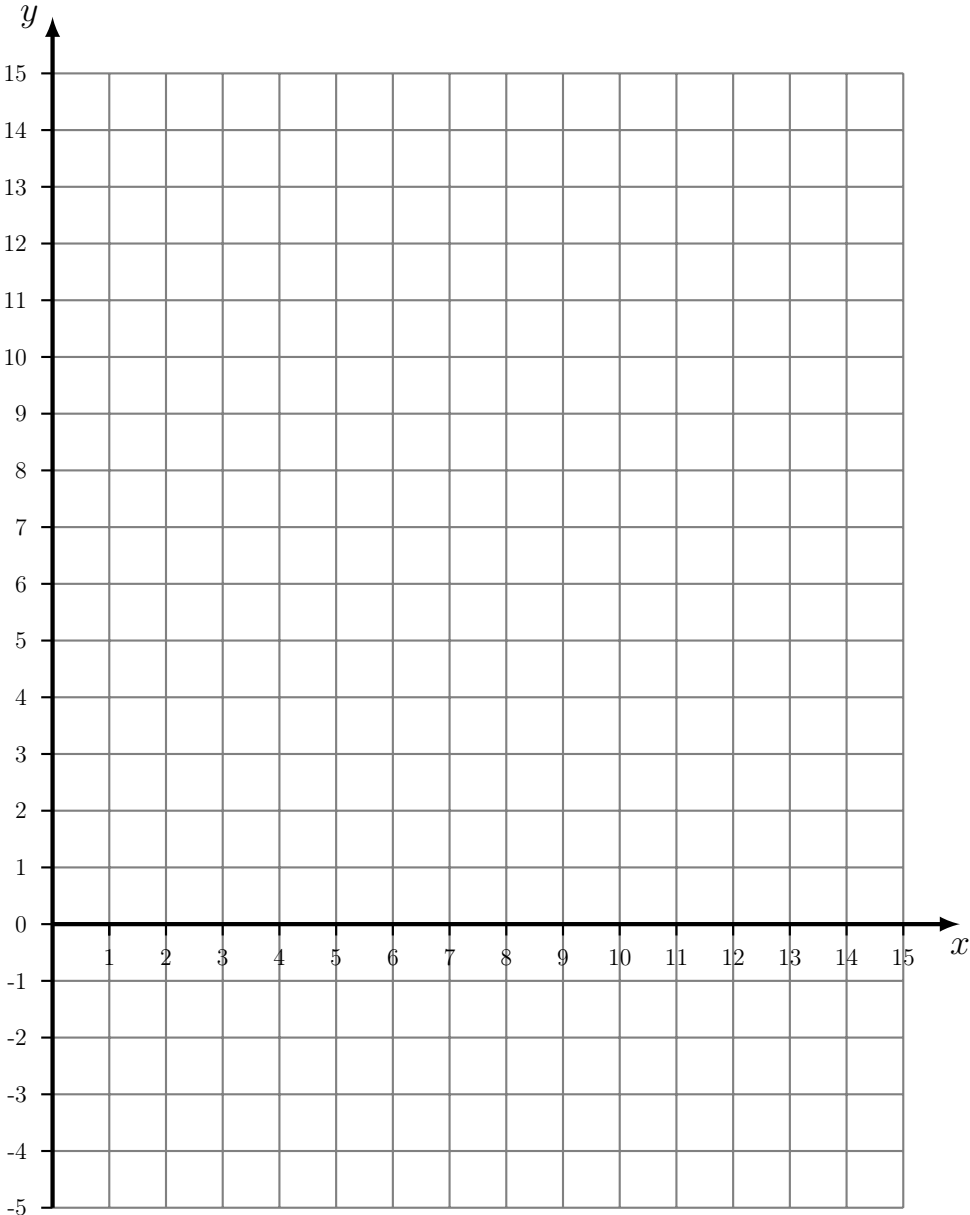
..... (3)

3.  $k = 7.7$  to 1 decimal place.

Write an inequality to show the range of values that  $k$  could be.

..... (2)

4. (a) Draw the line with equation  $y = 3x - 4$  on the grid below.



(2)

(b) Without using algebra, use your plot of  $y = 3x - 4$  to solve the equation  $3x - 4 = 5$ .

.....

(2)

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5. (a) Showing all working, write  $\frac{3}{8}$  as a decimal number.

..... (2)

(b) Write  $2 \times 64^{-\frac{1}{2}}$  as a simplified fraction.

..... (2)

(c) Write  $(7 \times 10^3) \times (12 \times 10^3)$  in standard form.

..... (1)

(d) Find a formula for the  $n$ th term of the sequence 3, -4, -11, -18, ...

..... (2)

(e) Simplify  $\frac{15}{\sqrt{5}}$ .

..... (1)

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**END**