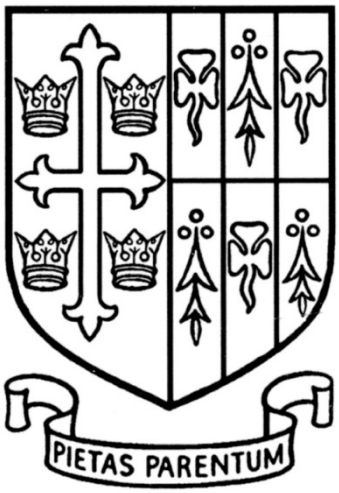
ST EDWARD'S

OXFORD



13+ SCHOLARSHIP EXAMINATION 2015

MATHEMATICS

PAPER 2

1 hour

40 Marks

Answer all questions.

Calculators are NOT permitted.

Extra Paper is available

Name: _____

1) Using the number 4 exactly four times, and any mathematical operations you can think of (x,÷,+, -, $\sqrt{\ }$, powers, !...) make the following totals.

e.g. $17 = 4 \times 4 + (4 \div 4)$

$4 = (4 \div 4)^4 \times 4$

Note you must use all four 4s available.

a) 32

b) 15

c) 20

d) 13

e) Find three different ways of making 2

[10 marks]

2) **(i)** An elephant had 60 cream buns.

On the **first** day he decided to keep $\frac{3}{4}$ of his cream buns.
He gave the rest away. Then he ate one.

On the **second** day he decided to keep $\frac{7}{11}$ of his cream buns.
He gave the rest away. Then he ate one.

On the **third** day he decided to keep $\frac{5}{9}$ of his cream buns.
He gave the rest away. Then he ate one.

On the **fourth** day he decided to keep $\frac{2}{7}$of his cream buns.
He gave the rest away. Then he ate one.

On the **fifth** day he decided to keep $\frac{2}{3}$ of his cream buns.
He gave the rest away. Then he ate one.

How many did he have left at the end?

(ii) An elephant had 75 cream buns.

Each day, he kept a fraction of his cream buns, gave the rest away, and then ate one.
These are the fractions he decided to ***keep:***

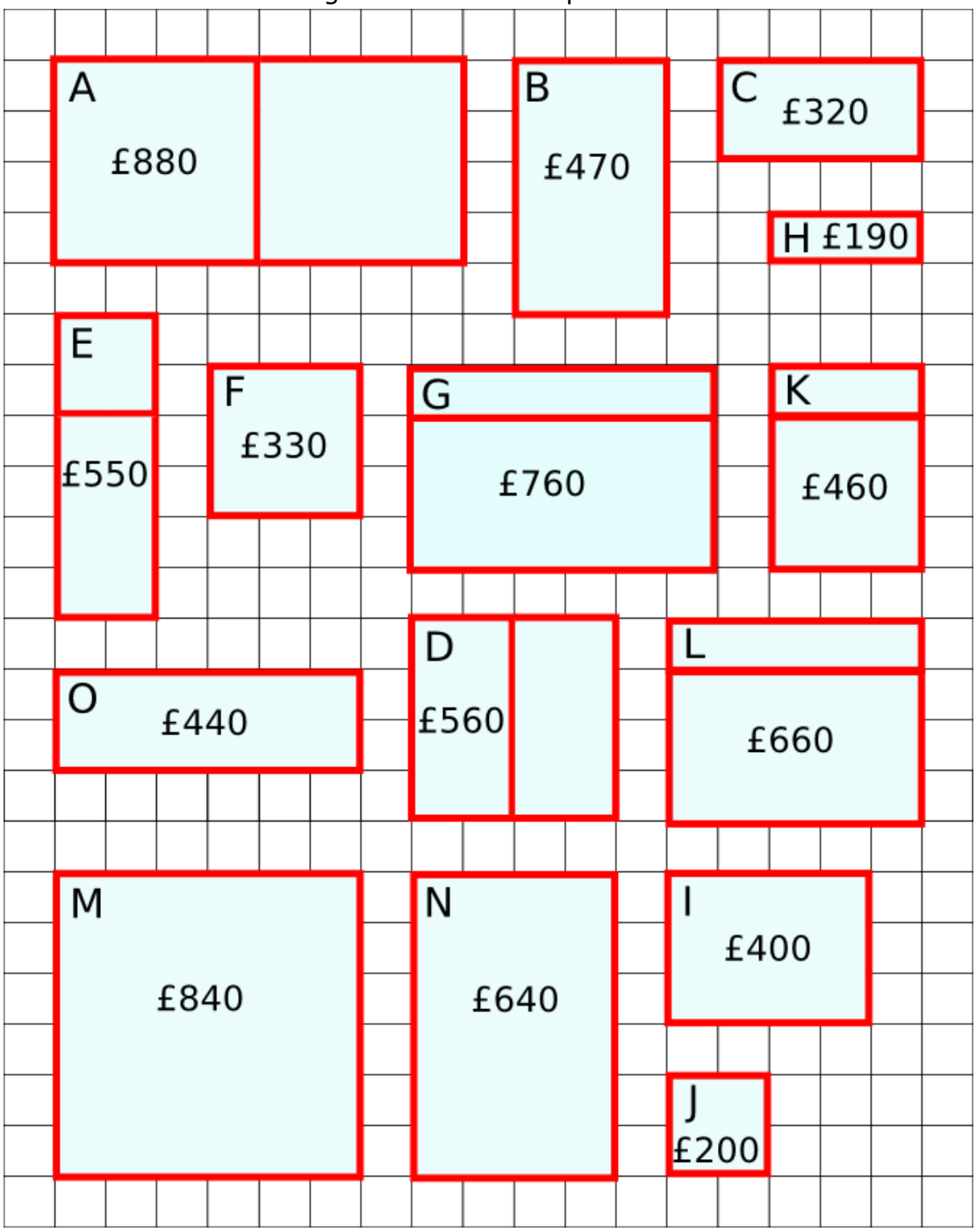
$\frac{1}{2}, \frac{1}{4}, \frac{3}{4}, \frac{3}{5}, \frac{5}{6}, \frac{11}{15}$

In which order did he use the fractions so that he was left with just one cream bun at the end?

[10 marks]

3) Warmsnug calculate the prices of their windows according to the area of glass used and the length of frame needed. Thick lines represent the frame.

Can you work out how Warmsnug arrived at the prices of the windows below?
Which window has been given an incorrect price?



[10 marks]

4) Of the numbers 1, 2, 3, . . . , 6000, how many are not multiples of 2, 3 or 5?

[5 marks]

5) If 8a -6b = 24, what is the value of $\frac{a}{3} - \frac{b}{4}$?

[5 marks]

END OF TEST