Please circle your maths teacher's initials: PRN, JME, RDA, RSB

KING'S COLLEGE JUNIOR SCHOOL
WIMBLEDON

UPPER REMOVES

MATHEMATICS I
(Non- Calculator)

JANUARY 2013

Time: 60 minutes

Name: _____

Please read this information before the examination starts

- **All** questions should be attempted.

- A completely correct answer will receive **no** marks unless you show all your working. Give the correct units when necessary.

- Calculators are NOT allowed

- Give your answers to 3 significant figures if necessary and not otherwise specified within the question.

- If you have time at the end, check your answers carefully.

2. (a) (i) Write 55% as a fraction in its lowest terms.

Answer: .... (2)

(ii) There are 240 children at Plato's Prep School.
55% of the children are boys.
How many of the children are girls?
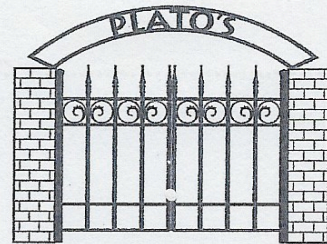
Answer: .... girls   (2)

(b) Write $\frac{9}{40}$ as a decimal.

Answer: .... (2)

(c) Calculate $\frac{3}{4}$ of £22

Answer: £ .... (2)

(d) Write the following numbers in order of size, starting with the smallest:

$$4.505 \qquad 4\frac{1}{2} \qquad 4.\dot{5} \qquad 4\frac{11}{20}$$

Answer: ...., ..., ..., ... (2)

5. If $a = 10$, $b = -5$, $c = -2$, find the value of

(i) $a + 3b$

Answer: .... (1)

(ii) $ac - b$

Answer: .... (2)

(iii) $\sqrt{(6a + c^2)}$

Answer: .... (2)

v) $\dfrac{a - c}{1 - b}$

Answer: .... (2)
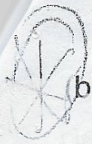
(b) Solve this inequality

$3(4 - a) > 21$

Answer: .... (2)

7. (a) Calculate

(i) $1\frac{2}{3} - \frac{1}{15}$

Answer: .... (2)

(ii) $1\frac{2}{3} \div \frac{1}{15}$
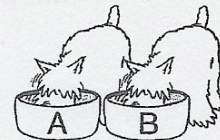
Answer: .... (2)

(b) Angie and Bertie are given a large tin of dog food.
Angie eats a quarter of the contents of the tin.
Bertie eats a quarter of the remainder.
What fraction of the tin's contents does Bertie eat?

Answer: .... (2)

9. Harry is 14 years old and Matthew is 10 years old.

    Auntie Louisa gives them £36 to share in the ratio of their ages.

    (i) How much does Harry receive?

    Answer: £ .... (2)

    Auntie Louisa then gives the boys an extra £12 each.

    (ii) What fraction of the total amount of money given by Auntie
         Louisa does Matthew receive?

    Answer: .... (2)

11. (i) On the centimetre-square grid below, plot the points (1, 3), (1, 6) and (3, 6)
    Join the points and label the triangle A.   (2)
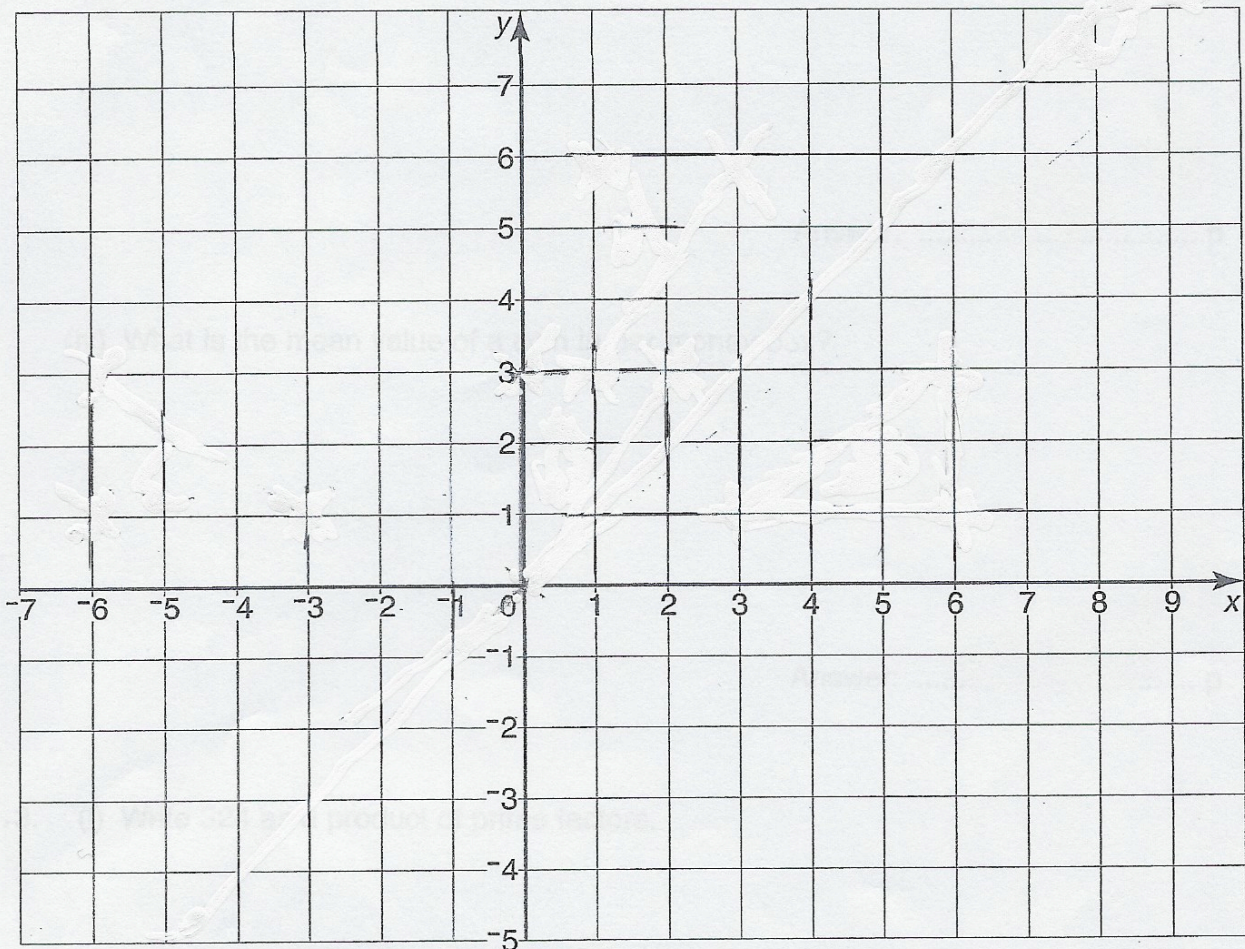
(ii) Draw and label the line $y = x$ (1)

(iii) Reflect triangle A in the line $y = x$
     Label the image B.   (1)

(iv) Rotate triangle A through 90° anticlockwise about the origin.
     Label the image C.   (2)

(v) Translate triangle A by *3 units to the left* and *1 unit down*.
     Label the image D.   (2)

(vi) Describe fully the single transformation which maps triangle C on to triangle D.

Answer: Rotate 90° clockwise about the point (-2,-1)   (2)

(iii) What is the modal value of a coin in Lucy's money box?

Answer: .... p   (1)

(iv) What is the mean value of a coin in her money box?

Answer: .... p   (3)

13. (i) Write 324 as a product of prime factors.

Answer: .... (2)

(ii) Hence, or otherwise, calculate the square root of 324

Answer: .... (2)

15. (i) On the isometric paper below, complete the 3-dimensional drawing of a cuboid measuring 5 cm by 3 cm by 2 cm.
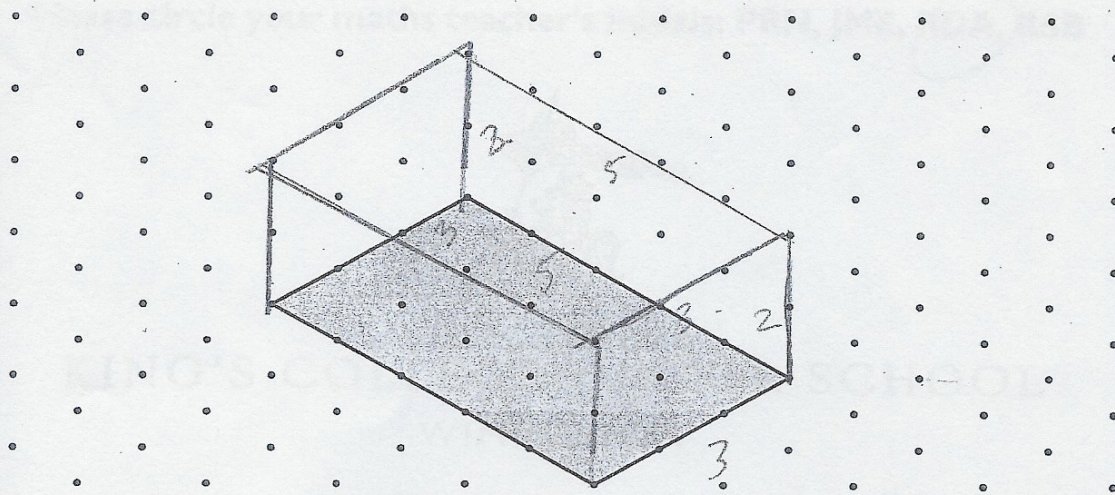
(1)

(ii) Work out the volume of the cuboid.

Answer: .... cm³ (1)

(iii) Work out the surface area of the cuboid.

Answer: .... cm² (3)