

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: _____

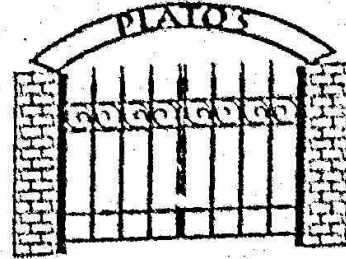
Please read this information before the examination starts

- **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

$4\frac{1}{2}$

4.5

$4\frac{11}{20}$

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) $\frac{a - c}{1 - b}$

Answer: (2)

6) Solve this inequality

$$3(4 - a) > 21$$

Answer: (2)

7. (a) Calculate

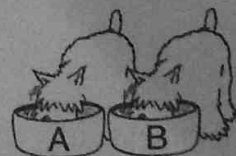
(i) $1\frac{2}{3} - \frac{1}{15}$

Answer: (2)

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

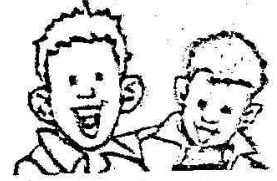
Answer: (2)

(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)

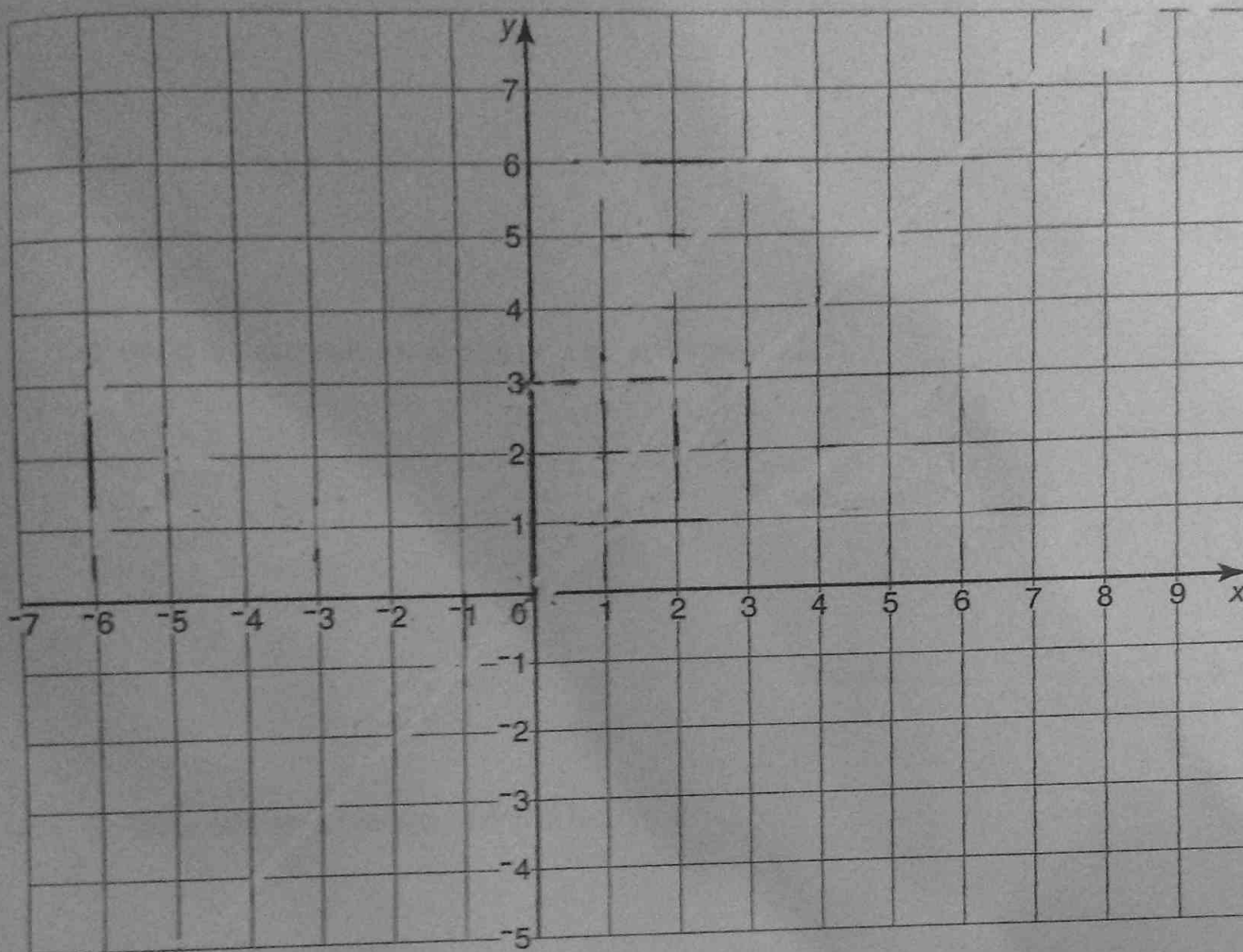
Auntie Louisa then gives the boys an extra £12 each.

(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 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)

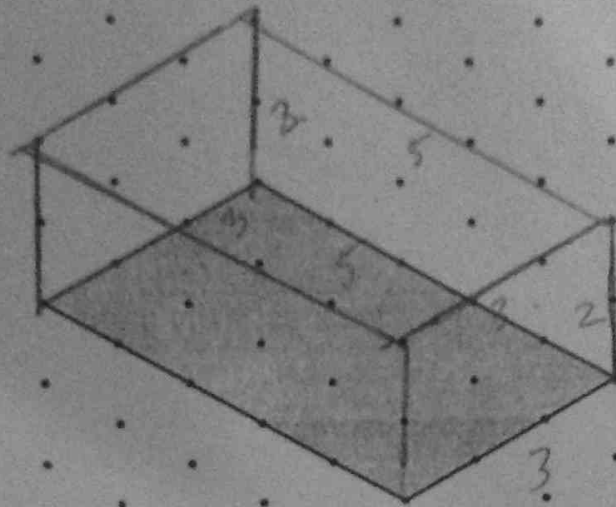
13. (i) Write 324 as a product of prime factors.

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)