1. June/2023/Paper_0444/21/No.2
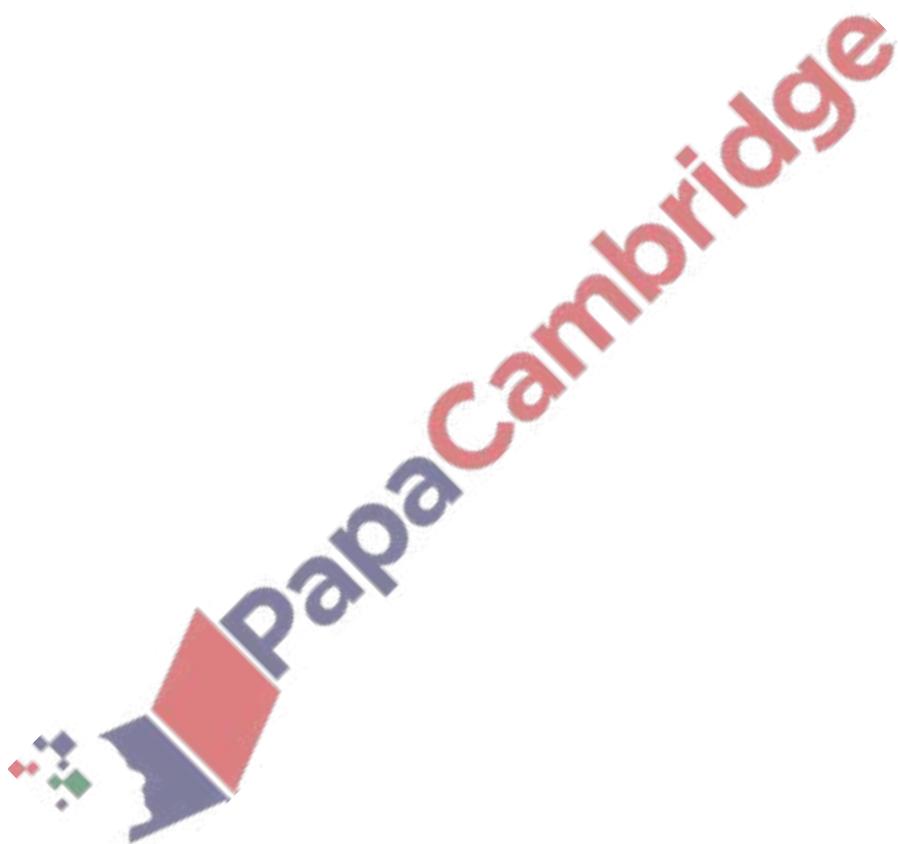
A train journey starts at 21 43.
It takes 8 hours and 32 minutes.

Find the time the journey finishes.
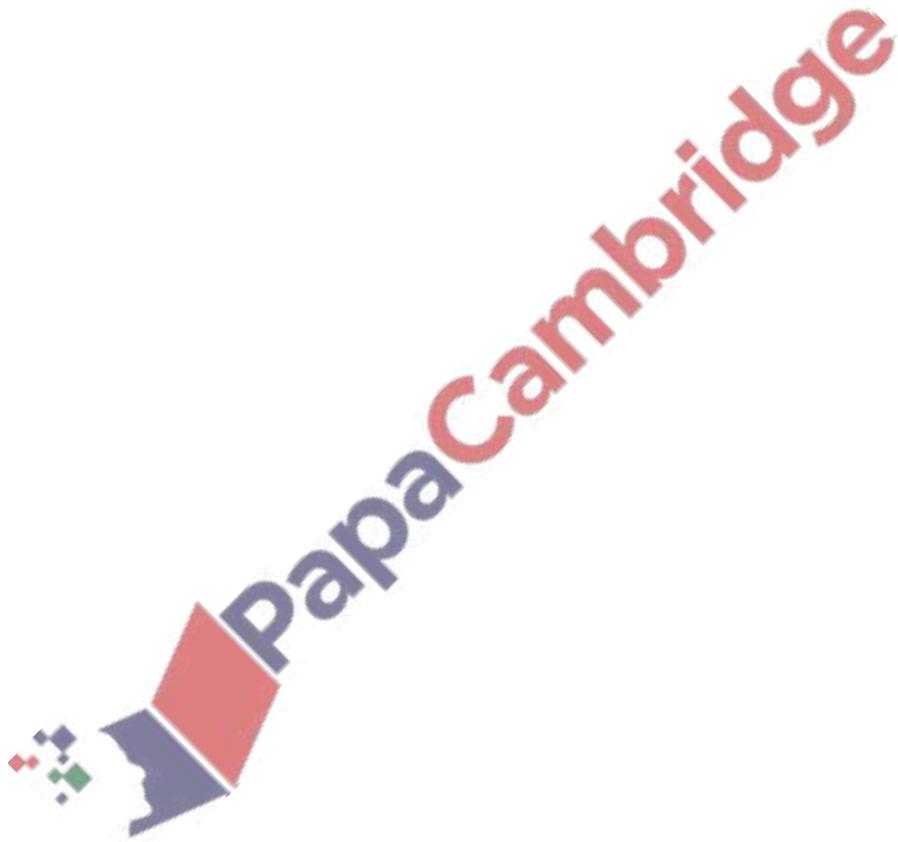
.... [1]

By writing each number in the calculation correct to 1 significant figure, work out an estimate for the value of

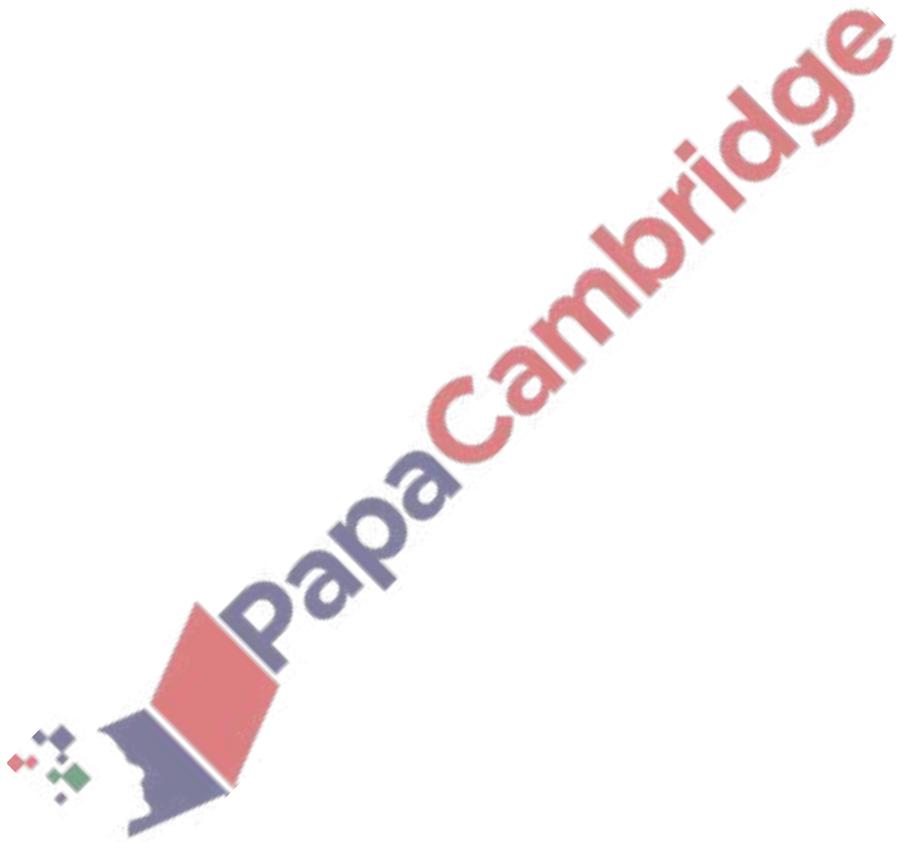$$\frac{6.7 \times 2.1}{18 - 5.9}.$$

You must show all your work.

.... [2]

3.

The scale of a map is 1 : 250 000.
On a map, the length of an island is 6 cm.

Work out the actual length of the island, giving your answer in kilometers.
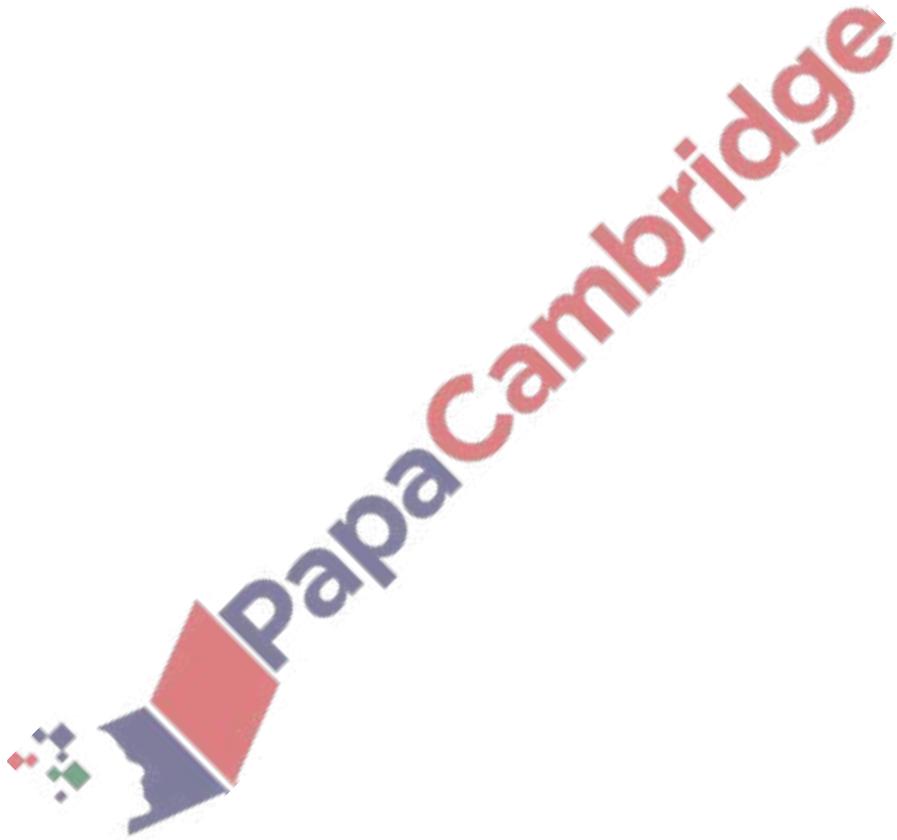
.... km [2]

4.

Work out $2\frac{1}{7} \div \frac{5}{9}$.

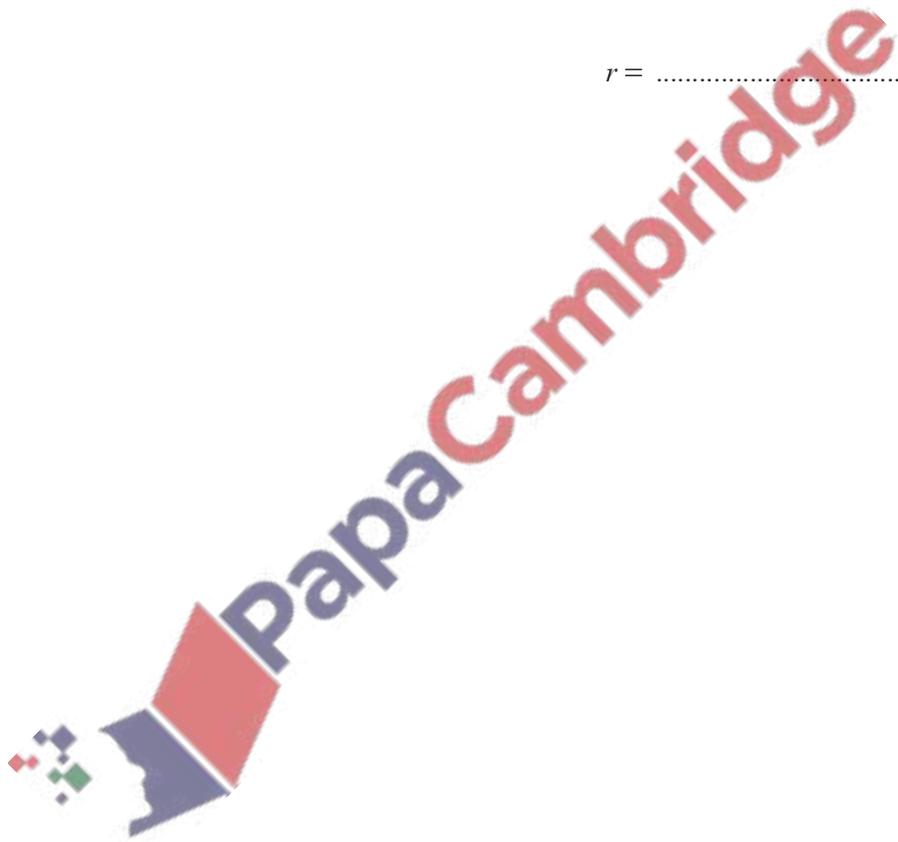Give your answer as a mixed number in its simplest form.

.... [3]

Anya invests \$4000 in an account that pays simple interest at a rate of $r\%$ per year.
At the end of 6 years, the account has earned \$480 in interest.

Find the value of r.

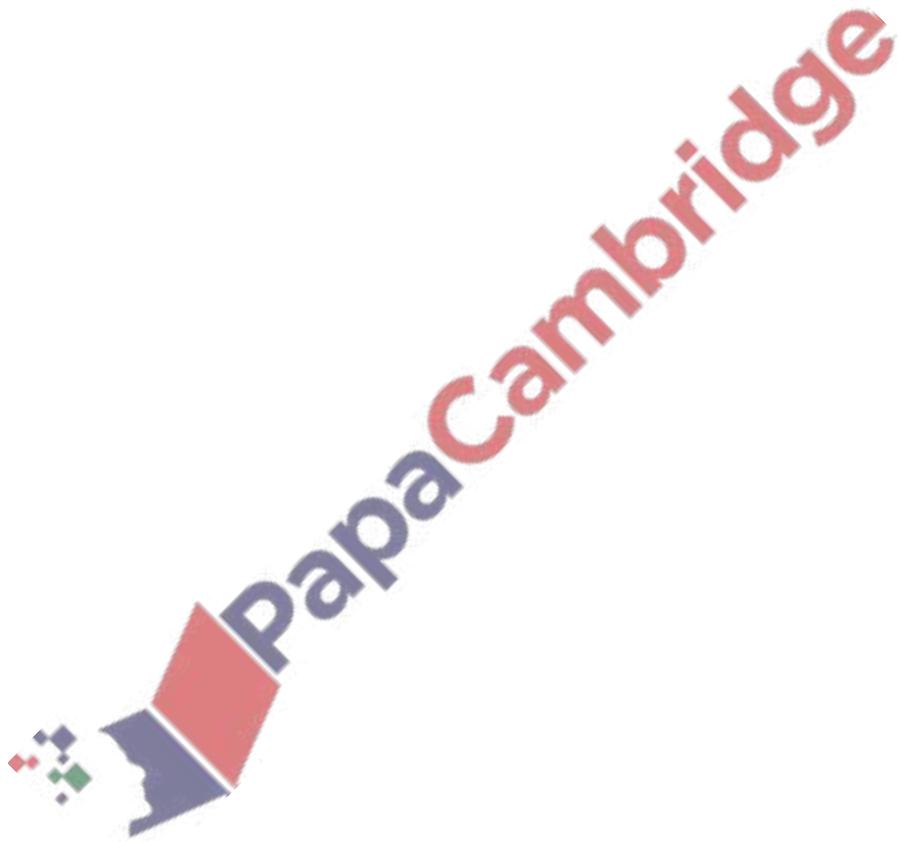$r = $ .... [2]

y varies as the square of $(x + 3)$.
When $x = 2$, $y = 50$.

Find y when $x = 1$.

$y = $ .... [3]

(a) Simplify $\left(3\sqrt{2}\right)^2$.

.... [1]

(b) Write $\left(\sqrt{5}-\sqrt{3}\right)^2$ in the form $a+b\sqrt{15}$.
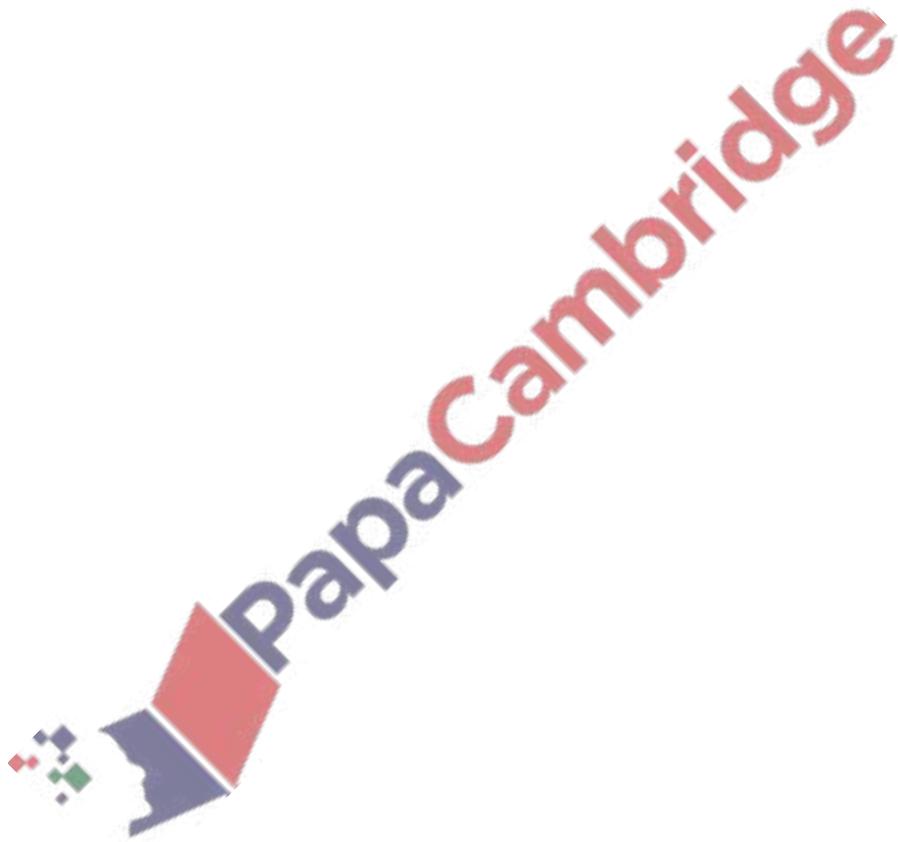
.... [2]

(a) An orchard has 1250 trees.
The trees are in the ratio   apple : pear : cherry = 12 : 9 : 4.

(i) Calculate the number of apple trees.

.... [2]

(ii) Last year in the orchard, the mean mass of fruit produced was 64 kg per tree.

Calculate the total mass of fruit produced last year.
Give your answer in tonnes.
[1 tonne = 1000 kg]

.... tonnes [2]

(iii) Last year, the mean mass of pears produced was 54 kg per tree.
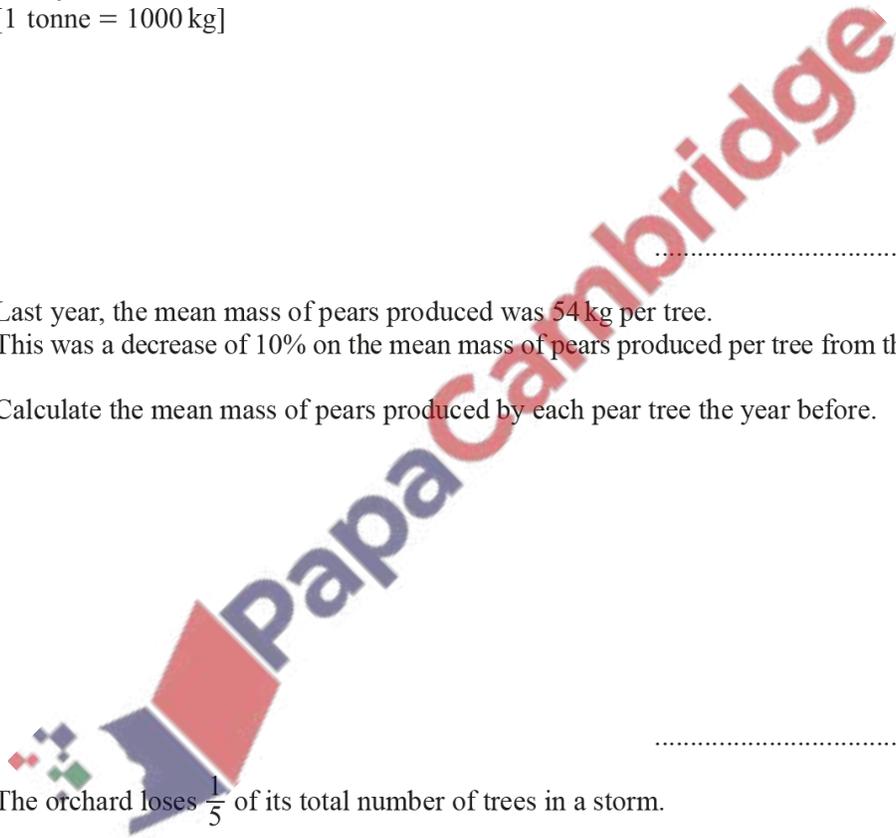This was a decrease of 10% on the mean mass of pears produced per tree from the year before.

Calculate the mean mass of pears produced by each pear tree the year before.

.... kg [2]

(iv) The orchard loses $\frac{1}{5}$ of its total number of trees in a storm.

Calculate the number of trees that remain.

.... [2]

(b) Paulo buys some pears from a market.
Pears cost $0.54 each or 0.51 euros each.

   (i) Paulo pays **in dollars** for 12 pears.

      Calculate the change he receives from $10.

$ .... [2]

   (ii) The exchange rate is $1 = 0.826 euros.

      Calculate how much more Paulo pays for **each** pear when he pays in euros.
      Give your answer in dollars, correct to the nearest cent.

$ .... [3]