# Maths skills – M0.4 Estimate results

## Teacher answers

### Quiz

1. Estimate these and check your approximations using a calculator

|  |  |  |
| --- | --- | --- |
| a) | 15.6 x 24.4 | 🡪 15 x 25 = 375 🡪 380.64 |
| b) | 8.8 x 32.3 | 🡪 10 x 30 = 300 🡪 284.24 |
| c) | 15.6/24.4 | 🡪 15/25 = 3/5 = 6/10 = 0.6 🡪 0.64 |
| d) | 8.8/32.3 | 🡪 8/32 = ¼ = 0.25 🡪 0.27 |

2. Here’s an example from ecological sampling. A 0.5 m x 0.5 m quadrat was used to count plants. Ten samples were taken and the plants in each quadrat counted.

The values were: 7, 3, 6, 12, 4, 8, 8, 9, 10, 2

Make an estimate of the density of plants per m2.

Now calculate the density of plants per m2.

~ 70 plants in total 🡪 Calculated as 69

Area of 1 quadrat = 0.5 x 0.5 = 0.25 m2.

Total area sampled of 10 x 0.25 = 2.5 m2.

To get density per m2, divide number of plants by area sampled

= ~70/2.5 = 28 plants per m2 = 28 plants m-2

The actual calculated value is 69/2.5 = 27.6 plants m-2 or 2.76 x 10 plants m-2.

3. Estimate whether the following calculations will give an answer that is greater than, or less than, one.

less than 1

1. $\frac{3.872}{5×10.2}$

more than 1

1. $\frac{3}{6×0.2}$

less than 1

1. $\frac{452×7}{84×113}$

more than 1

1. $\frac{0.5×0.2}{0.01}$

### Produced in collaboration with the University of East Anglia

**OCR Resources**: *the small print*OCR’s resources are provided to support the delivery of OCR qualifications, but in no way constitute an endorsed teaching method that is required by the Board, and the decision to use them lies with the individual teacher. Whilst every effort is made to ensure the accuracy of the content, OCR cannot be held responsible for any errors or omissions within these resources.
© OCR 2017 - This resource may be freely copied and distributed, as long as the OCR logo and this message remain intact and OCR is acknowledged as the originator of this work.

OCR acknowledges the use of the following content: n/a

Please get in touch if you want to discuss the accessibility of resources we offer to support delivery of our qualifications: resources.feedback@ocr.org.uk

We’d like to know your view on the resources we produce. By clicking on ‘Like’ or ‘Dislike’ you can help us to ensure that our resources work for you. When the email template pops up please add additional comments if you wish and then just click ‘Send’. Thank you.

If you do not currently offer this OCR qualification but would like to do so, please complete the Expression of Interest Form which can be found here: [www.ocr.org.uk/expression-of-interest](http://www.ocr.org.uk/expression-of-interest)

Looking for a resource? There is now a quick and easy search tool to help find free resources for your qualification:
[www.ocr.org.uk/i-want-to/find-resources/](http://www.ocr.org.uk/i-want-to/find-resources/)

This formative assessment resource has been produced as part of our free A Level teaching and learning support package. All the A Level teaching and learning resources, including delivery guides, topic exploration packs, lesson elements and more are available on the qualification webpages.

 If you are looking for examination practice materials, you can find the Sample Assessment Materials (SAMs) on the qualification webpages: [Biology A](http://www.ocr.org.uk/qualifications/as-a-level-gce-biology-a-h020-h420-from-2015/) / [Biology B](http://www.ocr.org.uk/qualifications/as-a-level-gce-biology-b-advancing-biology-h022-h422-from-2015/)