

Calculating Magnification **Answers**

magnification = size of image size of real object

Hint: always check the units; you may need to convert. Read the question carefully and make sure you understand what you are being asked to find; you may need to rearrange the equation.

Bronze	Silver	Gold
The image size of a cell is 2mm. The real size of the cell is 0.01mm. Calculate the magnification. $\frac{2}{0.01} = \times 200$	A cell with a length of 0.05mm is observed at ×200 magnification. Calculate the size of the image. Give your answer in mm. 0.05 × 200 = 10mm	The nucleus of a cell viewed at ×500 magnification has an image size of 2.4mm. Calculate the real size of nucleus. Give your answer in μ m. $\frac{2.4}{500} = 0.0048$ mm 0.0048 × 1000 = 4.8 μ m
The image size of a bacterial cell viewed under a microscope is 10mm. The real size of a bacterial cell is 0.002mm. Calculate the magnification. $\frac{10}{0.002} = \times 5000$	The tail of a sperm cell has a real length 50µm. The tail of the sperm cell in an image is measured as 7.5mm. Calculate the magnification of the image. 7.5 × 1000 = 7500µm 7500 50 = × 150	A leaf cell is observed at ×400 magnification. The size of the image is 2cm. Calculate the real size of the cell. Give your answer in μ m. $\frac{2}{400} = 0.005$ cm 0.0005 × 10 = 0.05mm 0.005 × 1000 = 50 μ m
A red blood cell has a diameter of 0.007mm. An image of a red blood cell has a diameter of 3.5mm. Calculate the magnification of the image. $\frac{3.5}{0.007} = \times 500$	Goblet cells from the lining of the intestine are observed at ×250 magnification. One of the cells has an image size of 2.75mm. Calculate the real size of the cell. Give your answer in mm. $\frac{2.75}{250} = 0.011 \text{mm}$	Three adjacent onion cells are viewed under a microscope at ×200 magnification. The combined image size of all three cells is 75mm. Assuming all the cells are the same size, calculate the real size of a single onion cell. Give your answer in µm. $\frac{75}{3} = 25mm$ $\frac{25}{200} = 0.125mm$ $0.125 \times 1000 = 125µm$