

CHALLENGE 3: IMAGE SIZE

SUGGESTED TIME: 20 MINUTES

A student is writing a program that lets you calculate the file size of a bitmap image. It currently has some errors. When it is fixed it should work as shown below:

```
Image width in pixels (e.g. 800): 800
Image height in pixels (e.g. 600): 600
Number of bits per pixel (e.g. 24): 16
The image file size is 960000 bytes or 937.5 KiB
```

Example program output when working correctly

The number of pixels in an image can be calculated by multiplying the width (in pixels) by the height (in pixels)

The number of bits used to store an image can be calculated by multiplying the total number of pixels by the number of bits per pixel.

The file size in bytes can be calculated by dividing the number of bits by 8

The file size in kibibytes can be calculated by dividing the number of bytes by 1024

Using the file Q02.py amend the code to add or complete lines to

- Fix the ImportError on original line 6

```
import Math
```

- fix the logic error on original line 14

```
BYTES_PER_KIBIBYTE = 1000
```

- Fix the logic error to return the number of bytes for the image

- Fix the syntax error on original line 42

```
numberOfBytes = calcImageSize(imageWidthPx, imageHeightPx,
imageBitsPerPx)
```

- Fix the logic error on original line 45

```
numberOfKiB = numberOfBytes * BYTES_PER_KIBIBYTE
```

Do **not** add any additional functionality

Save your file in the COMPLETED_CODING folder as **Q02_FINISHED.py**

A self marking online version of this challenge can be found here:

<https://blog.withcode.uk/2022/03/q2-python-exam-practice-questions-for-edexcel-gcse-computer-science/>