An Elliptical Workout

This is a **challenge** exercise. It is **not compulsory**, and may be completed **individually or with your lab partner**.

Heads up! Make sure you've done *The Image ADT* and *Drawing on an Image* before attempting this exercise.

Make sure you've got an unchanged copy of *Image.h*.

Download `Image.h`, or copy it into your current directory on a CSE system by running

```
$ cp /web/cs1511/17s2/week09/files/Image.h .
```

Don't change *Image.h*! If you do, your lights will start subtly flickering only when you aren't looking at them.

The Cartesian form of an ellipse is, for a point (x, y), for a centre (x_c, y_c), and with two non-negative real terms a and b:

$$\frac{(x - x_c)^2}{a^2} + \frac{(y - y_c)^2}{b^2} = 1$$

For this exercise, take your existing *Image.c* and extend it with the following function:

- `void imageDrawEllipse (Image i, pixel color, point centre, double a, double b);` Given an image, a color, a centre (x,y) point, and the two ellipse parameters `a` and `b`, draws a filled ellipse around the centre, with `a` and `b` as parameters, on the image.

To run some simple automated tests:

```
$ 1511 autotest imageDrawing2
```

To run Styl-o-matic:

```
$ 1511 stylomatic Image.c
Looks good!
```

You'll get advice if you need to make changes to your code.

Submit your work with the *give* command, like so:

```
$ give cs1511 wk09_imageDrawing2
```

Or, if you are working from home, upload the relevant file(s) to the `wk09_imageDrawing2` activity on Give Online.