Solution to Part II

Q1：

初始代码的分析：无法读入连续的文件名，比如下面的测试点给出的那样

- 1.分析代码功能,将文件中的名称和数字分开，数字后有'n'代表数字为负数
- 2.测试点:phi0.1 xN14.2 kappa0.5n
  a1 b14n n0 c0.2 phi0.1_xN14.2 phi0.1_xN14.2_kappa0.5n a1_b14n n0_c0.2
- 3 并没有完成任务但是附上代码

Q2：

> 画图的代码:

```
[a,b] = meshgrid(0:0.01:2*pi,0:0.01:2*pi);
x = (3 + cos(b)).*cos(a);
y = (3 + cos(b)).*sin(a);
z = sin(b);
surf(x,y,z);
```

> 最终的图像：在附件中(此处难以导入)

Q3:

- 1.代码:

```
Sum[1/(n^3+n^2),{n,1,Infinity}]
```

最终的结果:$\frac{\pi^2}{6}-1$

- 2.代码:

```
Integrate[(x^0.5)*Log[x]/(x + 1)^2, {x, 0, Infinity}]
```

最终的结果:π

Q4:

Q : Find the solution of the following equation with respect to θ:

$$Acos\theta + Bcos\theta + C$$

A :
let$x_1 = cos\theta$ and $x_2 = sin\theta$ then the solution is given by the intersection of the circle and the line:

$$x_1^2 + x_2^2 = 1$$

$$Ax_1 + Bx_2 + C = 0$$

We reformulate the equations in a parametric form:

$$|\mathbf{x}|^2 = 1$$

$$\mathbf{x}(t) = \mathbf{a} + t\mathbf{b}$$

where $\mathbf{x} = (x_1, x_2)$,$\mathbf{a} = (0, -C/B)$,$\mathbf{b} = (-C/A, C/B)$,and t is a parameter. The intersection points satisfythe following equation:

$$|\mathbf{a} + t\mathbf{b}|^2 = 1$$

which can be solved for *t* to find the intersection points:

$$t_{1,2} = \frac{-\mathbf{a} * \mathbf{b} \pm \sqrt{(\mathbf{a} * \mathbf{b})^2 - |\mathbf{b}|^2(|\mathbf{a}|^2 - 1)}}{|\mathbf{b}|^2}$$