

1. Based on the following code, identify (1) the rectangular box being used to enclose the region of integration,  $R$ , and (2) the region of integration.

```
1 fc = @(x,y) x.*y;
2 npoints = 100000;
3 xyvals = rand(npoints,2);
4 xyvals(:,1) = xyvals(:,1)*4-2;
5 xyvals(:,2) = xyvals(:,2)*4;
6 indomain = (-xyvals(:,1).^2+xyvals(:,2))>0; %set to 1 if in domain; 0 if not
7 sum(fc(xyvals(:,1),xyvals(:,2)).*indomain)*16/npoints
```

2. (parameterization of a circle). Provide a parameterization for a circle of radius 7, centered at  $(-2, 1)$ , and traversed clockwise. Traverse the circle once (at a speed of your choice).

3. (velocity) Find  $\underline{v}(t)$  for  $\underline{r}(t) = \langle t^2, \cos t, \sin t \rangle$ .