> *Note that I am not a windows user so the the plot that this code produces may look a little different from yours. On windows devices you may need to tweak a few things like line widths (*`lwd`*) and dot patterns (*`lty`*) to get things looking right.*

We begin by opening a graphics window of the right size. The window will have a half-inch margin at the top and bottom and a quarter-inch margin at the sides. It also will use a 10 point font size.

```
windows(width = 4.5, height = 6, pointsize = 10)
par(mar = c(0.5, 0.25, 0.5, 0.25))
```

Now we generate the x values. It is important to make sure that the values $-4, -3, -2, -1$ and 0 are included in the sequence so that the discontinuities are handled correctly.

```
x = seq(-4, 4, by = .001)
```

Another alternative which works is

```
x = seq(-4, 4, length = 1001)
```

It is important to use 1001 rather than 1000 to avoid getting black (near) vertical lines across the plot.

The gamma function and its reciprocal can be evaluated using the built-in function `gamma`. For the reciprocal, make sure that it is continuous by handling the `NaN` values correctly.

```
y = gamma(x)
yr = 1/y
yr[is.na(y)] = 0
```

Everthing is now ready. We start a new plot and make sure that the axes are scaled correctly.

```
plot.new()
plot.window(xlim = c(-4, 4), xaxs = "i",
            ylim = c(-5, 5), yaxs = "i")
```

Draw the horizontal and vertical grid lines.

```
abline(h = -4:4, col = "gray")
abline(v = -3:3, col = "gray")
```

Now draw the gamma function and its reciprocal. Depending on the device, you may need to change the dotted line specification to something like `"13"`.

```
lines(x, y)
lines(x, yr, lty="11")
```

Draw the axes in black.

```
abline(h = 0, v = 0, lwd = 1.25)
box()
```

The tick labels must be produced by hand. The built-in `axis` function really isn't up to the job.

```
yoff = .075
xoff = .075
text(rep(0, 11) - xoff, -5:5 - yoff,
     -5:5, xpd = T, adj = c(1,1))
text(-4:4 - xoff, rep(0, 9) - yoff,
     -4:4, xpd = T, adj = c(1,1))
```

Finally, we add the title and legend.

```
title("The Gamma Function and Its Reciprocal")
legend(2.5, -4, xjust = 0.5, yjust = 0.5,
       legend = c("Gamma", "Reciprocal"),
       lty = c("solid", "11"), bg = "white")
```

That's all folks!