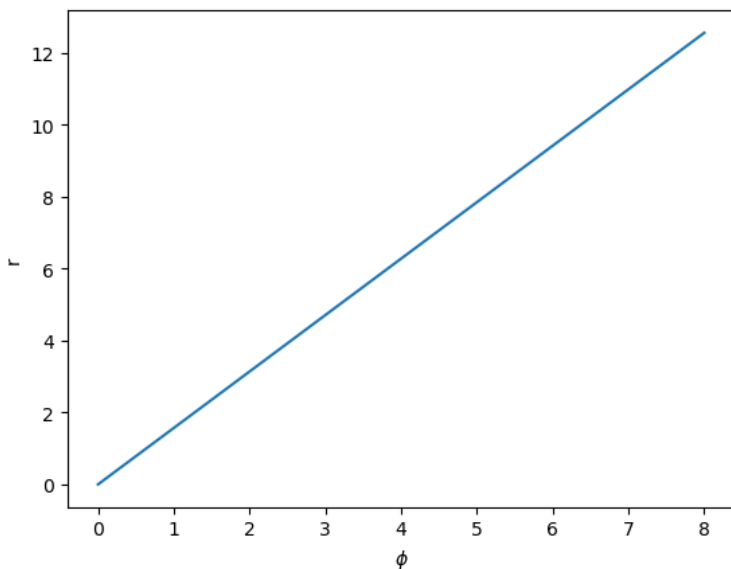
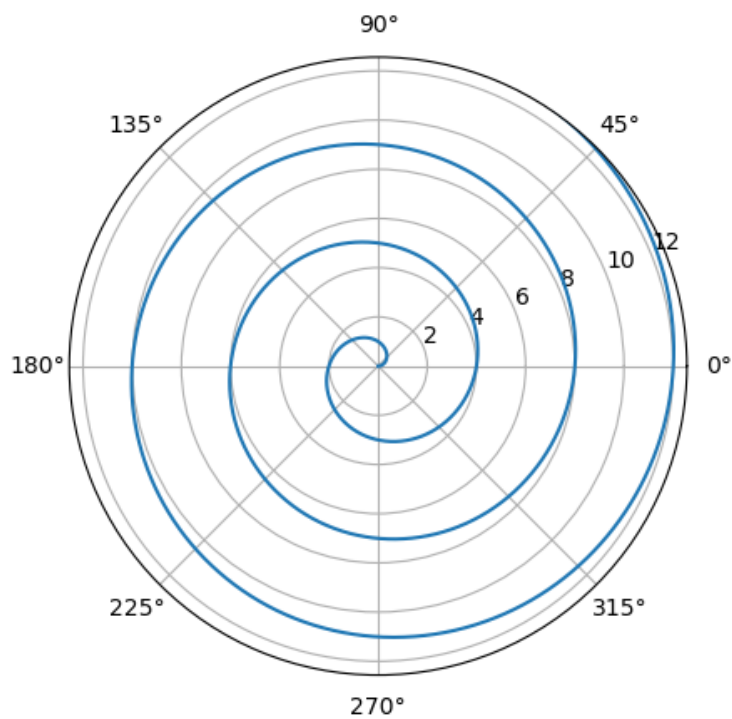


Make a graph of  $r = \frac{2}{\pi} \phi$

**Solution** There are two common graphs that you might make. One, plotting  $\phi$  vs.  $r$  as a linear relationship, like so:



This graph is technically correct, but does not reflect the typical circular geometry of the relationship between  $\phi$  and  $r$ .



Contrast the graph above with the polar plot

For the polar plots, pay attention to the constant  $\frac{2}{\pi}$  in the equation. It tells you how the numerical values of  $\phi$  is related to the numerical values of  $r$  in the graph, i.e. how tight the spiral is.