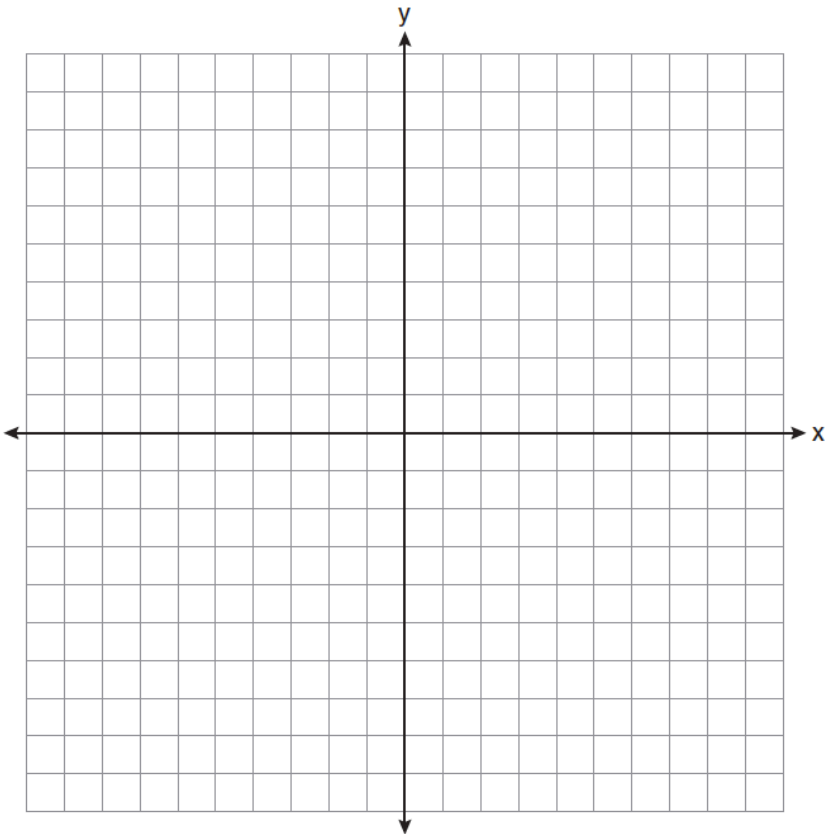1. Given the function $l(x) = x + 2$, let's define a new function $D(x)$ to be the distance from the origin $(0,0)$ to any point $(x, l(x))$ on the graph of l.
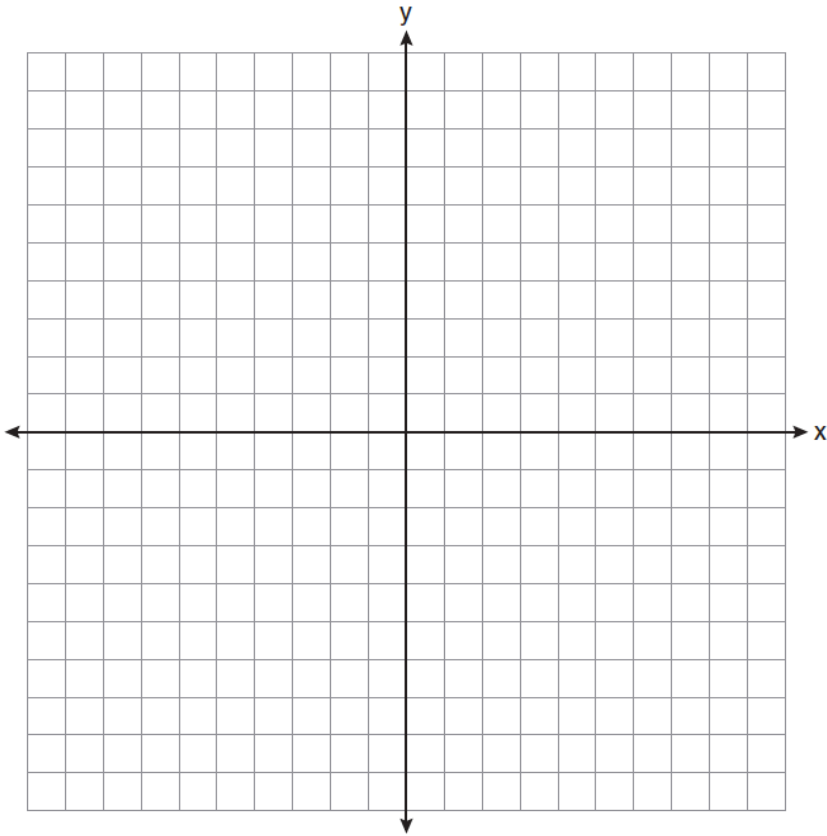
     i.   Graph $l(x)$ below.

     ii.   Plot $l(1)$. Find the distance from $(0,0)$ to $(1, l(1))$.

     iii.   Is $(1, \sqrt{10})$ on the graph of $D(x)$?

     iv.   Choose another point on l and find the distance between $(0,0)$ and that point.

     v.   What is the distance from $(0,0)$ to any point (x,y) that is on $l(x)$? What does this expression represent? (hint: remember y=x+2)

     vi.   State the natural domain of $D(x)$.

vii.   Sketch a graph of $D(x)$ on the axes below.

2. Given the graph of $f(x)$ at the right.

    On the same axes, sketch

    a) $f(x+3)$
    b) $f(x)+3$
    c) $3f(x)$
    d) $f(2x)$