

Your name

Homework 9.101, April 28, 2022

0. Do CLT 115, 116, 117.

1. Use graph paper for the rest of this homework and attach it to this page. You may use calculators. Graph the points $A = (0, 0)$, $B = (0, -3)$, $C = (-3, 0)$, and $D = (-3, -3)$.

2. What is the distance between the points $(0,0)$ and $(-3,-3)$?

3. What is the slope of the line between $(0,0)$ and $(-3,-3)$?

4. What is an equation for the line that goes between $(0,0)$ and $(-3,-3)$ and continues to $(-4,-4)$, $(-100, -100)$ and so forth?

5. Continue the line in the other direction, to $(3,3)$. What is the slope of that part of the line?

6. Start a new graph, just for positive x and y . For the equation $y = x^2$, draw the points for when x takes the values 0, 1, 2, 3, 4, 5, 6, so y goes from 0 to 36.

7. Connect the points you drew with a smooth curve.

8. Draw what you think the shape of the curve for $y = x^2$ will be beyond $x = 6$.

9. Draw the curve $y = 4x$ on the same graph as you drew $y = x^2$. Which is bigger, $y = 4x$ or $y = x^2$?

10. What is the slope of $y = 4x$? What is the slope of $y = x^2$?

11. Draw the curve $y = 4x - x^2$. Note that y will take values from 0 to -12 for x from 0 to 6, so you will need the y -axis to go negative now. Think about why this curve illustrates the path of a cannonball shot over a cliff.