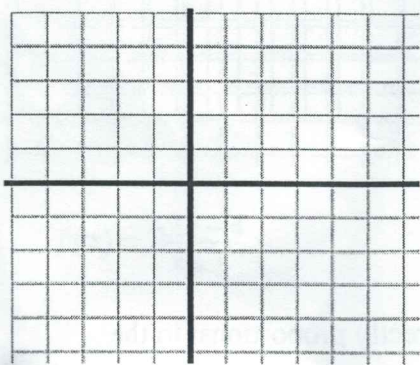


9. Describe each formula using the language of proportionality

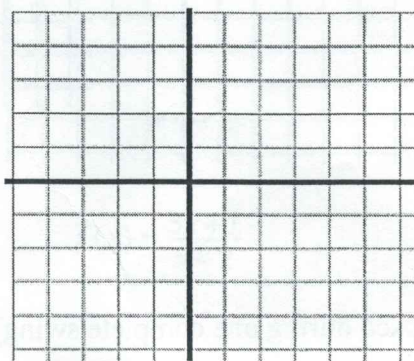
a. $V = 12\pi r^2$ where V is volume and r is radius of a cylinder.

b. $V = \frac{130}{P}$ where V is volume and P is pressure.

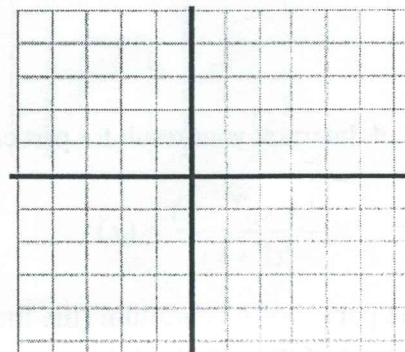
10. Sketch the graph of each function by finding x -intercepts, the y -intercept, and end behavior.



$f(x) = (x-2)(x-1)(x+2)$



$f(x) = -0.5(x-2)(x-1)^2(x+3)$



$f(x) = -x^3 + x^2 - 6x$

11. The intensity of light from a point source is inversely proportional to the square of the distance from the light source.

a. If the intensity is 4 watts per square meter at a distance of 6 meters from the source, find the constant of proportionality, k , and write the formula for intensity, I , as a function of distance, d , from the source.

b. Find the intensity at a distance of 8 meters from the source.

c. If the distance from the source doubles, what is the effect on the intensity of the light? Answer in a clear sentence and show complete and persuasive mathematical work.

d. Find the inverse formula, $d(I)$, and compose the two functions to demonstrate that they are truly inverse functions.