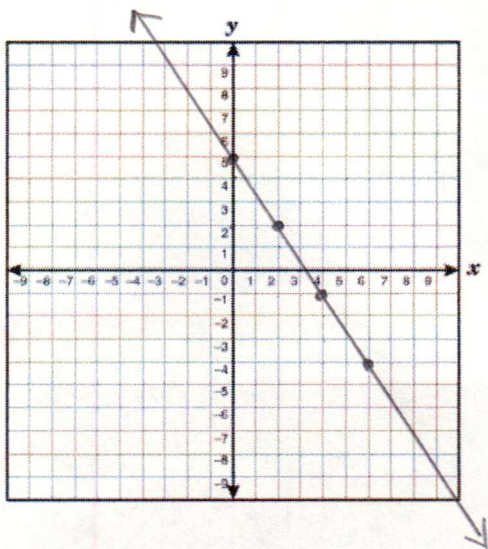


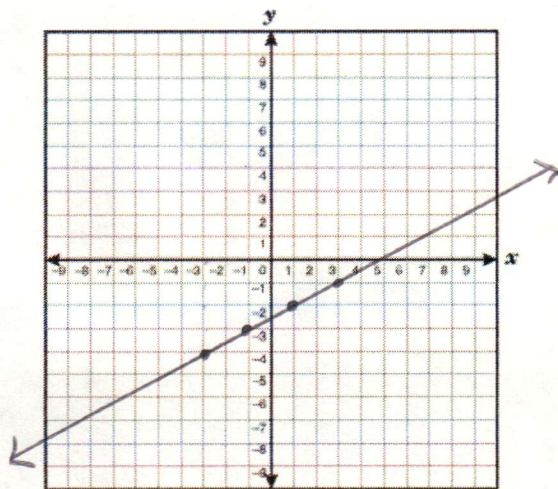
Notes 2.6 – Linear & Exponential Functions

Warmup – More Graphing Practice

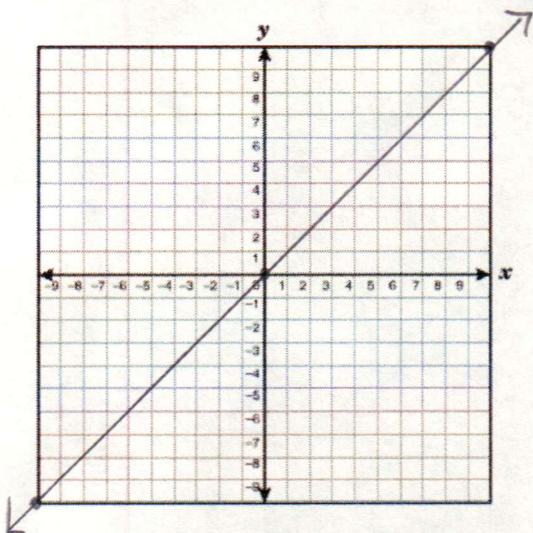
1.  $y = -\frac{3}{2}x + 5$



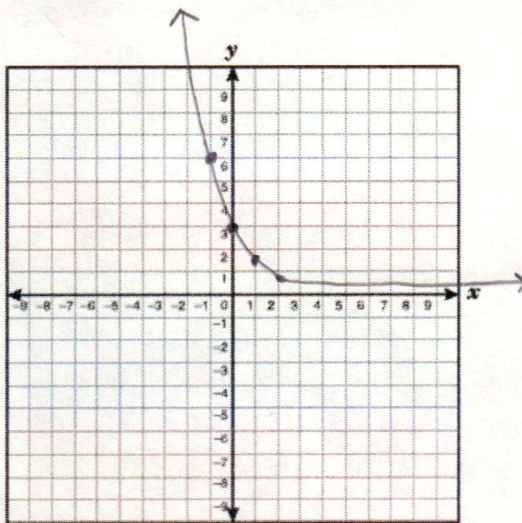
2.  $y = \frac{1}{2}(x + 3) - 4$   $(-3, -4)$



3.  $y = x$



4.  $y = 3\left(\frac{1}{2}\right)^x$



## Lesson – Linear & Exponential Functions from Context

- a) In his job selling vacuums, Joe makes \$500 per month plus \$20 for each vacuum that he sells. Model the situation using an equation and graph (and a table if needed).

Variables:  $v = \#$  of vacuums sold  
 $m = \text{total money earned}$

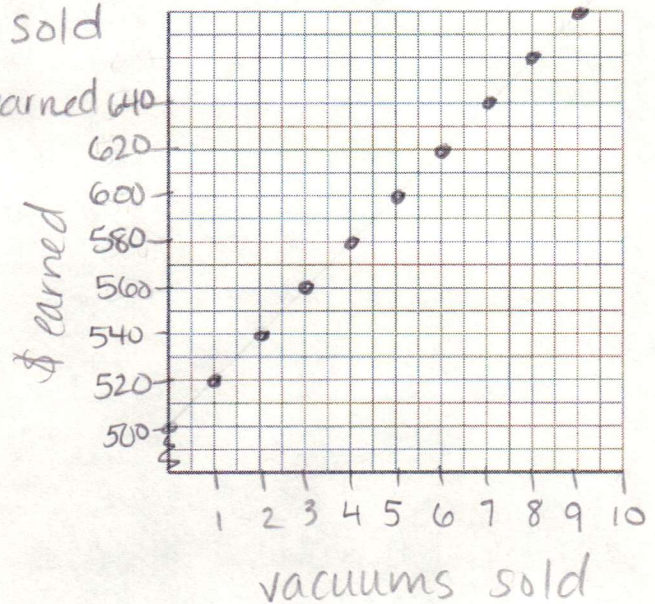
Equation:

$$m = 20v + 500$$

Linear or Exponential: linear

Discrete or Continuous:

discrete, because you cannot sell half a vacuum



- b) The population of Java Springs in 2003 was estimated to be 35,000 people with an annual rate of increase of about 2.4%. Model the situation using an equation and graph (and a table if needed).

Variables:

$y = \#$  of years  
 $p = \#$  of people

Equation:

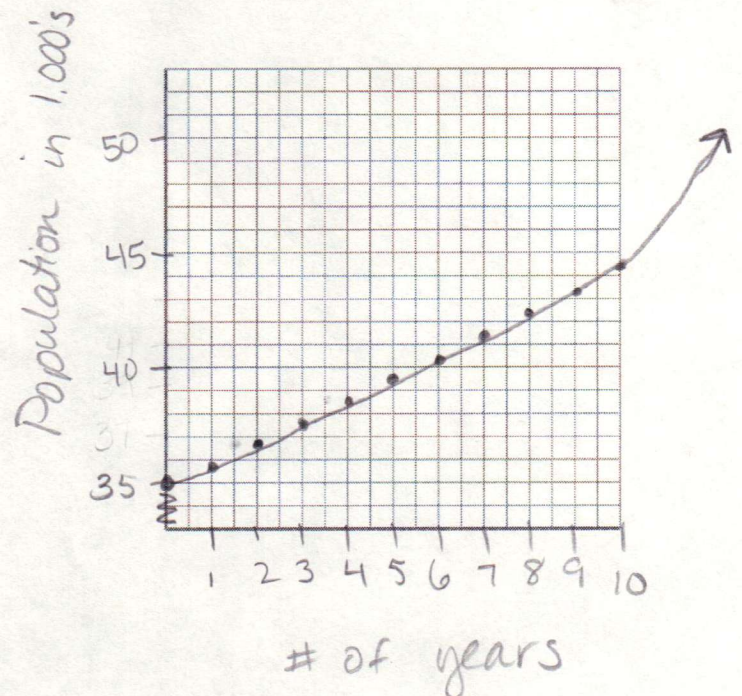
$$p = 35,000(1.024)^y$$

Linear or Exponential:

exponential

Discrete or Continuous:

continuous, because the population changes during the year



- c) Many of the books at the Library of Congress are electronic, 13 e-books can be downloaded onto the computer each hour. Model the situation using an equation and graph (and a table if needed).

Variables:

$h = \#$  of hours

$e = \#$  of e-books

Equation:

$$e = 13h + 0$$

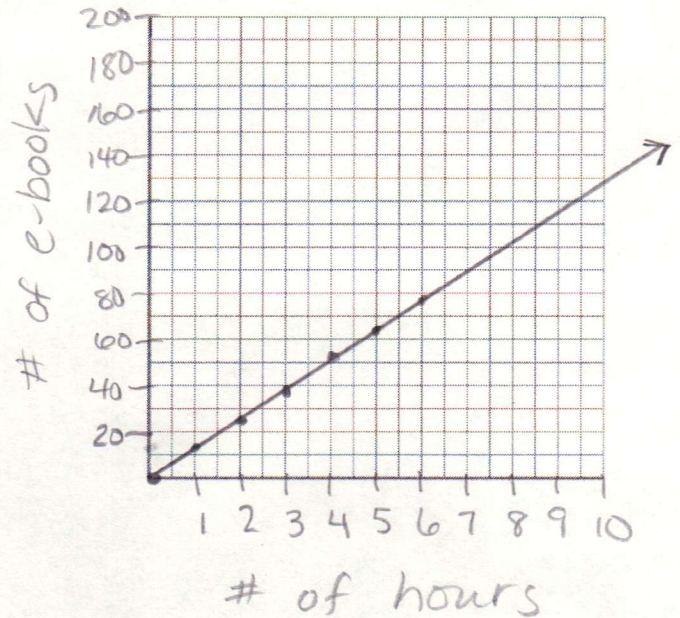
Linear or Exponential:

linear

Discrete or Continuous:

Continuous-downloads

are continuing as time goes by



- d) Medicine taken by a patient breaks down in the blood stream and dissipates out of the patient's system. Suppose a dose of 60 milligrams of an anti-parasite medicine is given to a dog and the medicine breaks down at a rate of 20% per hour. Model the situation using an equation and graph (and a table if needed).

Variables:

$h = \#$  of hours

$m = \text{amount of medicine (mg)}$

Equation:

$$m = 60(.8)^h$$

Linear or Exponential:

exponential

Discrete or Continuous:

Continuous, medicine works constantly

