

7.2 General Form

Format

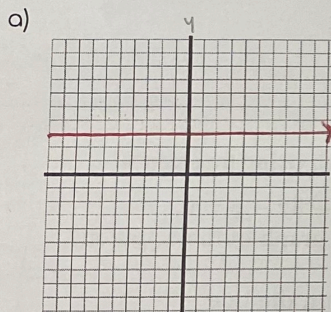
$$Ax + By + C = 0 \rightarrow A \text{ must be positive}$$

Can be used for all lines

Example 3 Identify Intercepts of Horizontal or Vertical Lines

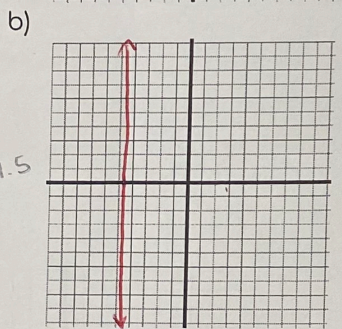
Sketch each linear relation and identify the intercepts. Then, state the domain and range.

- a) $y - 3 = 0$ $y = 3$
 b) $x + 4.5 = 0$ $x = -4.5$
 c) $y = 0$



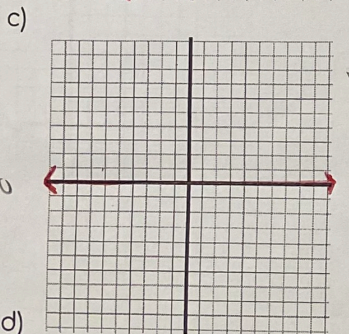
y-intercept
 $(0, 3)$
 $D: \{x \in \mathbb{R}\}$
 $R: y = 3$

$y = 3$



x-intercept
 $(-4.5, 0)$
 $D: x = -4.5$
 $R: \{y \in \mathbb{R}\}$

$x = -4.5$



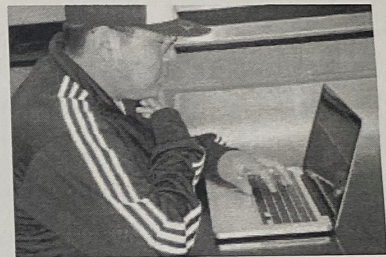
y-intercept
 $(0, 0)$
 $D: \{x \in \mathbb{R}\}$
 $R: \{y \in \mathbb{R}\}$

$y = 0$

d)

Example 4 Interpret Intercepts

Spencer has 66 GB of disk space left on his laptop to fill with television shows and movies that he purchases on-line.



- a) Suppose a one-hour show uses 1.1 GB of disk space and a movie uses 4.4 GB. Write a linear equation that represents the number of television shows, T , and movies, M , that Spencer can store on his laptop.
- b) Determine the T -intercept of a graph of the linear equation. What does the T -intercept represent?
- c) What would the M -intercept be? What does the M -intercept represent?
- d) If Spencer stores 16 television shows, how many movies does he have space for?

$$a) \frac{1.1T}{1.1} + \frac{4.4M}{1.1} = \frac{66}{1.1}$$

$$T + 4M = 60$$

b) T -int.
 T when $M = 0$ $(60, 0)$

$$T + 4M = 60$$

$$T + 4(0) = 60$$

$$T = 60$$

60 TV shows can fit onto the drive.

c) M -int.
 M when $T = 0$

$$T + 4M = 60$$

$$0 + 4M = 60$$

$$\frac{4M}{4} = \frac{60}{4}$$

$$M = 15$$

15 movies onto the drive

d) $T + 4M = 60$

$$\begin{array}{r} 16 + 4M = 60 \\ -16 \quad -16 \\ \hline 4M = 44 \\ \frac{4M}{4} = \frac{44}{4} \\ M = 11 \end{array}$$

If he has 16 TV shows, he can fit 11 movies onto the drive.

