

Graphing Lines using Domain - Design

Graph the following equations using the **domain** to define a line segment that will create a design. You may need to convert some equations to slope-intercept form. Use pencil so that you can erase, if you need to. After completing the design, use colored pencils or markers to outline the line segments and then you may color in the design.

1) $y = 4x + 4$
 $1 \leq x \leq 2$
 m: 4 ↑ ↓
 ↓ ←
 b: 4

6) $y = x + 4$
 $2 \leq x \leq 6$
 m: 1 ↑
 ↓ →
 b: 4

2) $7x + 5y = 35$
 $0 \leq x \leq 5$
 m: $-\frac{7}{5}$ ↓
 →
 b: 7

$$\begin{array}{r} 7x + 5y = 35 \\ -7x = -7x \\ \hline 5y = -7x + 35 \\ \frac{5y}{5} = \frac{-7x + 35}{5} \\ y = -\frac{7}{5}x + 7 \end{array}$$

7) $-7x + 5y = -35$
 $0 \leq x \leq 5$
 m: $\frac{7}{5}$
 b: -7

$$\begin{array}{r} -7x + 5y = -35 \\ +7x = +7x \\ \hline 5y = 7x - 35 \\ \frac{5y}{5} = \frac{7x - 35}{5} \\ y = \frac{7}{5}x - 7 \end{array}$$

3) $y = -x$
 $-8 \leq x \leq -4$
 m: -1 ↓
 →
 b: 0

8) $y + 1 = -2(x - 1)$
 $-6 \leq x \leq -2$
 m: -2
 b: 1

$$\begin{array}{r} y + 1 = -2(x - 1) \\ y + 1 = -2x + 2 \\ - 1 = - 1 \\ \hline y = -2x + 1 \end{array}$$

4) $7x + 5y = -35$
 $-5 \leq x \leq 0$
 m: $-\frac{7}{5}$
 b: -7

$$\begin{array}{r} 7x + 5y = -35 \\ -7x = -7x \\ \hline 5y = -7x - 35 \\ \frac{5y}{5} = \frac{-7x - 35}{5} \\ y = -\frac{7}{5}x - 7 \end{array}$$

9) $-7x + 5y = 35$
 $-5 \leq x \leq 0$
 m: $\frac{7}{5}$
 b: 7

$$\begin{array}{r} -7x + 5y = 35 \\ +7x = +7x \\ \hline 5y = 7x + 35 \\ \frac{5y}{5} = \frac{7x + 35}{5} \\ y = \frac{7}{5}x + 7 \end{array}$$

5) $y = \frac{2}{5}x + 2$
 $4 \leq x \leq 9$
 m: $\frac{2}{5}$ ↑ rise
 → run

Start from \rightarrow b: 2
 y-intercept (0, 2)

