

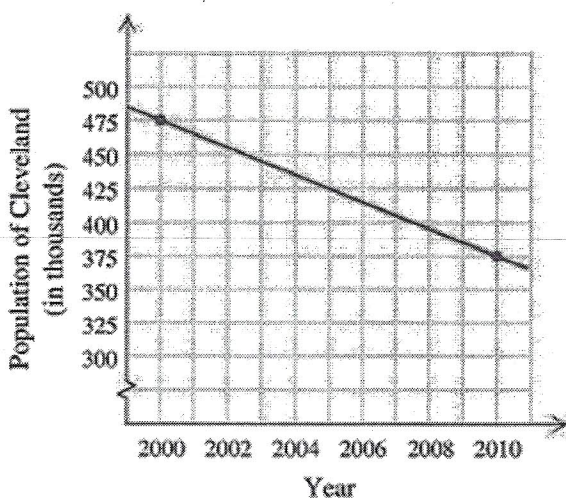
Name Key

1. Find the grade (slope) of the road shown below in percent.



$$m = \frac{\text{rise}}{\text{run}} = \frac{300}{5000} = \frac{3}{50} = .06 = 6\%$$

2. The graph below shows the population of Cleveland :



- a) Write ordered pairs for the 2 points indicated on the line.

$$(2000, 475) \quad (2010, 375)$$

- b) Find the rate of population change per year.

$$\frac{\text{pop change}}{\text{year}} = \frac{375 - 475}{2010 - 2000} = \frac{-100}{10} = -10 \text{ (thous) people/year}$$

3. For the lines  $y = 2x - 1$  and  $x + 2y = 4$ :

- a) Give the slope of each line.

$$\textcircled{1} y = 2x - 1 \quad m = 2$$

$$\textcircled{2} x + 2y = 4$$

$$\frac{2y}{2} = \frac{-x + 4}{2}, \quad y = -\frac{1}{2}x + 2 \quad m = -\frac{1}{2}$$

- b) Are the lines parallel, perpendicular or neither?

perpendicular

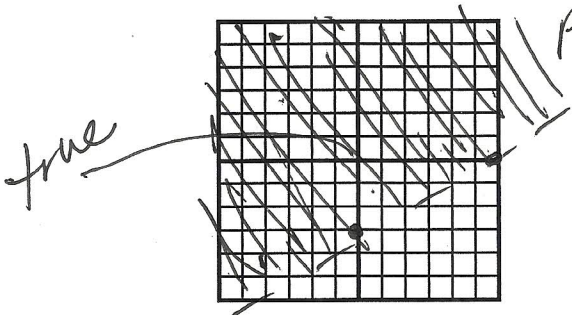
4. Find the equation of the line through the points (0, -1) and (-3, 5).

$$m = \frac{5 - (-1)}{-3 - 0} = \frac{6}{-3} = -2$$

$$y - (-1) = -2(x - 0) \Rightarrow y + 1 = -2x$$

$$y = -2x - 1$$

5. Graph the linear inequality  $x - 2y < 6$  dotted



pretend  $x - 2y = 6$

x	y
0	-3
6	0

$$-2y = 6, y = -3$$

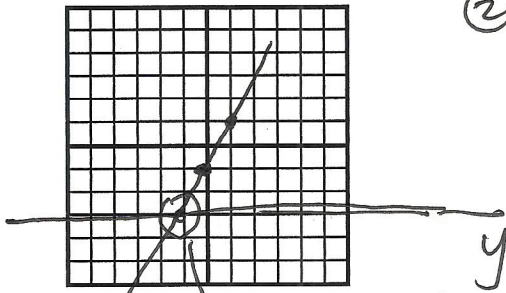
$$x - 0 = 6$$

Test (0,0):  $0 - 0 < 6$  true

6. Graph each of the 2 equations, then give the solution found by graphing.

- ①  $y = -3$
- ②  $y = 2x - 1$

① horizontal line thru  $y = -3$



②  $y = 2x - 1$  anchor  
 $m = \frac{2}{1} = \frac{2 \text{ up}}{1 \text{ right}}$

$(-1, -3) \rightarrow$  sol. is  $(-1, -3)$

7. Solve the system:  
 $3x - y = 10$   
 $x = 2y$

$$3(2y) - y = 10$$

$$x = 2(2) = 4$$

$$(4, 2)$$

$$6y - y = 10$$

$$5y = 10, y = 2$$

