

Translating Verbal Statements To Inequalities

Examples

Symbol	Meaning	Related Terms	Verbal Statement	Algebraic Statement
$>$	greater than	more than, over, exceeds, above	I want to exceed the most points I have scored in a game which is 28. Let p represent points.	$p > 28$
$<$	less than	fewer, under, below	To receive a children's discount at the movies you must be under 13 years old. Let a represent age.	$a < 13$
\geq	greater than or equal to	at least, minimum	Your essay must be at least 5 pages long. Let p represent pages.	$p \geq 5$
\leq	less than or equal to	limit, maximum, capacity, at most	John has a spending limit of \$300. Let s represent amount spent.	$s \leq \$300$

Read each verbal inequality. Fill in the remainder of the chart.

Symbol	Meaning	Related Term(s)	Verbal Statement	Algebraic Statement
$<$	less than	under	To be allowed on a children's ride at the fair, the child must be under 50 pounds. Let w = weight.	$w < 50$
\leq	less than / equal to	limit, max, capacity	The speed limit is 70 miles per hour. Let s represent speed.	$s \leq 70$
\geq	less than / equal to		You must be at least 16 years old to drive a car. Let a represent age.	$a \geq 16$
$>$			To ride a roller coaster, the rider must be over 58 inches tall. Let h represent height.	$h > 58$
$<$			I need to beat a time of 10.9 to establish a personal best. Let t represent time.	$t < 10.9$
\leq			The capacity of a concert hall is 500 people. Let p = people	$p \leq 500$
\geq			You must be at least 35 years of age to run for the US presidency. Let a represent age.	$a \geq 35$

Symbol	Meaning	Related Term(s)	Verbal Statement	Algebraic Statement
\geq			The federal minimum wage is \$7.25. A person must be paid at least \$7.25 per hour. Let w = wages	$w \geq 7.25$
\geq			A local university requires at least a 2.8 GPA to be considered. Let g represent required GPA.	$G \geq 2.8$
\leq			The maximum age allowed to enlist in the US Army is 35 years old. Let a represent age.	$A \leq 35$
\leq			A sports car has a maximum speed of 220 miles per hour. Let s = speed.	$S \leq 220$
$<$			At sea level, water boils at 212° . What temperatures are less than 212° ? Let t represent temperature.	$m < 212$
$>$			A crowd was trying to break a noise record of 137.5 decibels. How many decibels would break the record?	$N > 137.5$
\geq			Kyle needs at least 15 more dollars to buy the shoes he wants. Let d represent how much Kyle needs.	$d \geq 15$
$<$			A business has a goal of selling 10,000 pizzas in a month. What values would fall short of this goal?	$p < 10,000$
\leq			A football stadium has a capacity of 70,000 people. What values would not exceed a capacity of 70,000?	$p \leq 70,000$
\geq			If 14 is the minimum required age for employment, at what ages can you be employed? Let a = age.	$a \geq 14$
\geq			To donate blood you must be at least 110 pounds. At what weights can a person donate blood.	$w \geq 110$
$<$			If the hemoglobin level in your blood is less than 12.5 grams per deciliter, you are not allowed to donate blood. At what levels can you not donate blood?	$h < 12.5$
\geq			Hurricanes must have sustained winds of 157 mph or higher to be classified as a category 5 hurricane. What wind speeds would a hurricane be classified as a category 5?	$w \geq 157$
\leq			A cell phone plan has a limit of 500 minutes per month. How many minutes are allowed per month?	$m \leq 500$

$$5) -6.5(k+3.1) = -7.8k - 11.18$$

$$-6.5k - 20.15 = -7.8k - 11.18$$

$$+7.8k \qquad +7.8k$$

$$1.3k - 20.15 = -11.18$$

$$+20.15 \qquad +20.15$$

$$1.3k = 8.97$$

$$\frac{1.3k}{1.3} = \frac{8.97}{1.3}$$

$$k = 6.9$$

$$8) 1.72 + 7.3b = 7.3(7.5b + 0.7) + 6.1$$

$$1.72 + 7.3b = 54.75b + 5.11 + 6.1$$

$$1.72 + 7.3b = 54.75b + 11.21$$

$$-7.3b \qquad -7.3b$$

$$1.72 = 47.45b + 11.21$$

$$-11.21 \qquad -11.21$$

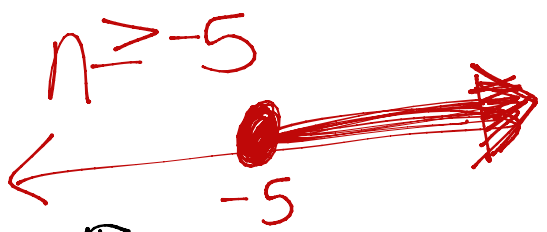
$$-9.49 = 47.45b$$

$$\frac{-9.49}{47.45} = \frac{47.45b}{47.45}$$

$$b = -0.2$$

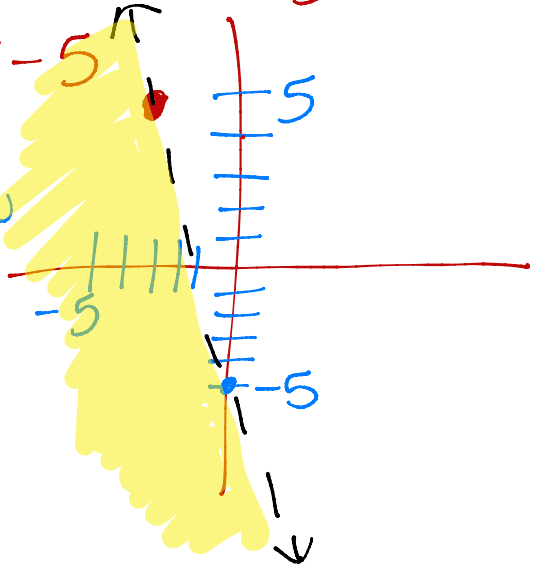
$$9) -n \leq 5$$

$$\frac{-n}{-1} \geq \frac{5}{-1}$$



$$16) y < -\frac{10}{3}x - 5$$

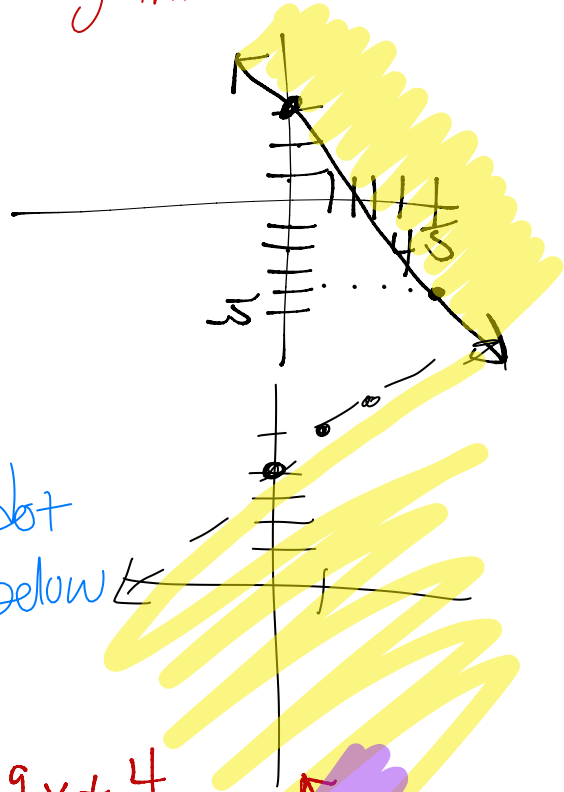
Slope: $-\frac{10}{3}$
 y-int: -5
 dot below



$$18) \begin{aligned} & 7x + 5y \geq 15 \\ & \quad -7x \quad \quad -7x \\ & \frac{5y}{5} \geq \frac{-7x + 15}{5} \end{aligned}$$

$$y \geq -\frac{7}{5}x + 3$$

Slope: $-\frac{7}{5}$ Solid above
y-int: 3 above

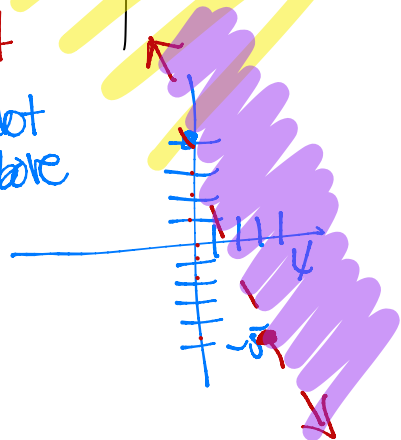


$$19) \begin{aligned} & -x - y > -4 \\ & \quad -x \quad \quad -x \end{aligned}$$

$$\begin{aligned} & -y > -x - 4 \\ & \quad -1 \quad -1 \end{aligned}$$

$$y < x + 4$$

slope: $\frac{1}{1}$ dot below
y-int: 4 below



$$20) \begin{aligned} & 9x + 2y > 8 \\ & \quad -9x \quad \quad -9x \end{aligned}$$

$$2y > -9x + \frac{8}{2}$$

$$y > -\frac{9}{2}x + 4$$

slope: $-\frac{9}{2}$ dot above
y-int: 4 above

$$23) \cancel{X}k = \frac{w-v}{k} \text{ for } X$$

$$X = \frac{w-v}{k}$$

$$24) \frac{g}{cb} = \frac{g}{cb} \text{ for } a$$

$$a = \frac{g}{cb}$$

$$27) g = \frac{-b}{+b} + \frac{c}{a} \text{ for } a$$

$$a(g+b) = \frac{c}{a} \cdot a$$

$$\frac{a(g+b)}{g+b} = \frac{c}{g+b}$$

$$a = \frac{c}{g+b}$$

$$22) z = a - m + b \text{ for } a$$

$$z - b = a - m + m$$

$$z - b + m = a$$

$$25) X - \cancel{c} = \frac{d+r}{+c} \text{ for } X$$

$$X = \frac{d+r}{c} + c$$

$$21) mz = \frac{xy}{m} \text{ for } X$$

$$\frac{mz}{y} = \frac{xy}{y}$$

$$X = \frac{mz}{y}$$

$$28) z = a + m + b \text{ for } a$$

$$z + b = a + m - m$$

$$a = z + b - m$$

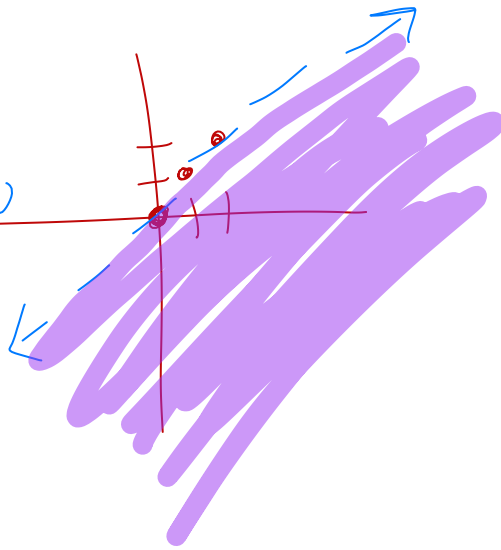
$$29) z = mx + y \text{ for } X$$

$$\frac{z-y}{m} = \frac{mx}{m}$$

$$X = \frac{z-y}{m}$$

13) $y < x$
slope: $\frac{1}{1}$
y-int: 0

dot
below



10) $n \geq -6$

