28

Linear Inequality Applications

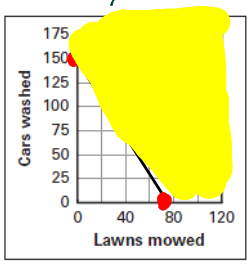
Summer Job You offer to mow your neighbors' lawns for $20 or to wash their cars for $10. Your goal is to earn at least $1500 this summer.

Write and graph an inequality that represents the possible number of lawns (x) you would have to mow and cars (y) that you would have to wash in order to reach your goal.

$20x + 10y \geq 1500$

$20x + 10y = 1500$

x	y
0	150
75	0



What are the coordinates of mowing 50 lawns and washing 65 cars? Is that point a solution to the inequality?

$(50, 65)$ $20(50) + 10(65) \stackrel{?}{\geq} 1500$

$1000 + 650 \geq 1500$ Yes

It costs $2 in gas for each lawnmowing job and $1.50 in supplies for each car wash. Explain how you would modify the inequality if your goal is to make a *profit* of $1200?

$18x + 8.50y \geq 1200$

You sell T-shirts (x) for $15 each and caps (y) for $10 each. Write and graph an inequality describing how many shirts and caps you must sell to exceed $1800 in sales. $15x + 10y > 1800$

Explain how you can modify this inequality to describe how many shirts and caps you must sell to exceed $600 in *profit* if you make a 40% profit on shirts and a 30% profit on caps.

$15(.40) = \$6.00$

$10(.30) = \$3.00$

$6x + 3y > 600$

x	y
0	180
120	0