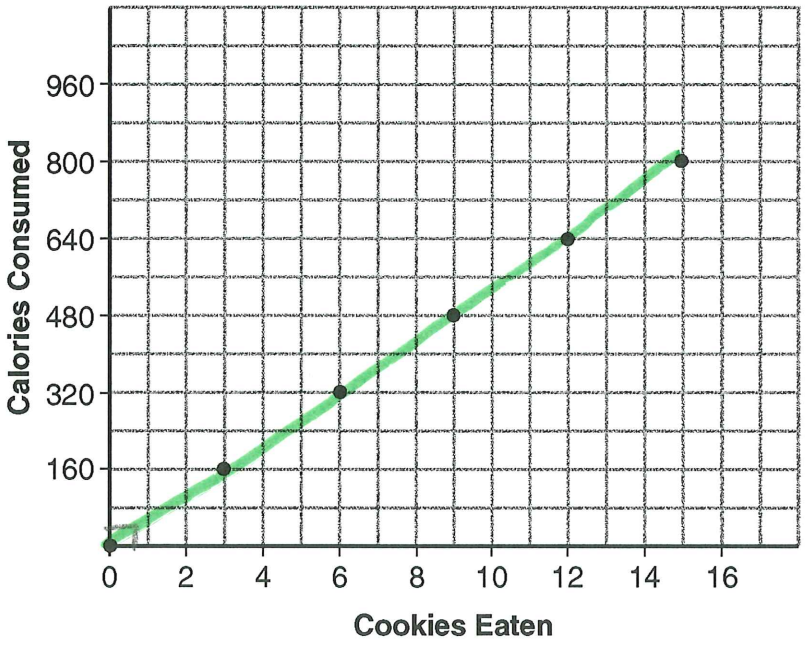
29 Samantha purchases a package of sugar cookies. The nutrition label states that each serving size of 3 cookies contains 160 Calories. Samantha creates the graph below showing the number of cookies eaten and the number of Calories consumed.



Explain why it is appropriate for Samantha to draw a line through the points on the graph.

She can draw a line through the points because she can eat half a cookie, 1 cookie, or # 2 cookies and be consuming the matching number of calories (40, 80, 160 calories). She doesn't have to eat only 3, 6, 9, 12, etc. cookies.

30 A two-inch-long grasshopper can jump a horizontal distance of 40 inches. An athlete, who is five feet nine, wants to cover a distance of one mile by jumping. If this person could jump at the same ratio of body-length to jump-length as the grasshopper, determine, to the *nearest jump*, how many jumps it would take this athlete to jump one mile.

Given info:

Grasshopper

2 in

can jump 40 in

Athlete

5 ft. 9 in.

× 12

60 in + 9 in

69 in

wants to jump 1 mile

* use reference sheet

5280 ft.

× 12

63,360 in.

Grasshopper / Athlete

height: 2 in / 40 in = 69 in / x :height

one jump: one jump

$\frac{2x}{2} = \frac{2760}{2}$

$x = 1380$ in (one jump of athlete)

63360 ÷ 1380 = 45.9 jumps

46 jumps

*Answer: *

This athlete needs 46 jumps to jump 1 mile.

↗ isolate y in each inequality

35 Solve the following system of inequalities graphically on the grid below and label the solution S.

$3x + 4y > 20$

$x < 3y - 18$

$3x + 4y > 20$

$-3x \quad -3x$

$4y > 20 - 3x$

$\frac{4y}{4} > \frac{20 - 3x}{4}$

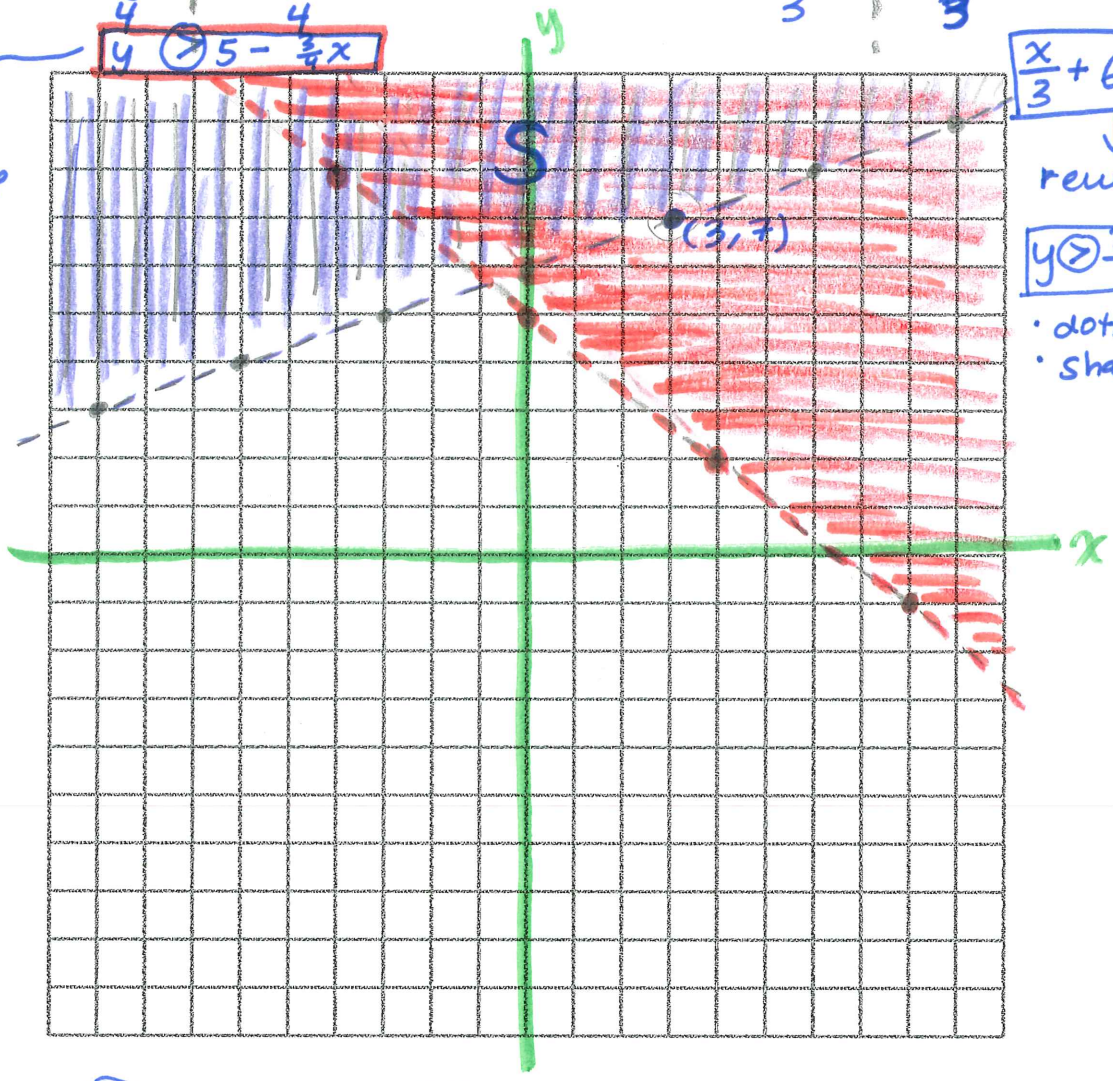
$y > 5 - \frac{3}{4}x$

$x < 3y - 18$

$+18 \quad +18$

$x + 18 < 3y$

$\frac{x + 18}{3} < \frac{3y}{3}$



· dotted
· shade up

$\frac{x}{3} + 6 < y$

↓ rewrite

$y > \frac{x}{3} + 6$

· dotted
· shade up

Is the point (3,7) in the solution set? Explain your answer.

No it is not in the solution set because (3,7) falls on the dotted line of one ~~function~~ inequality which means it is not included in that solution set. (The point has to be in both solutions of inequalities to be a solution to the system.)