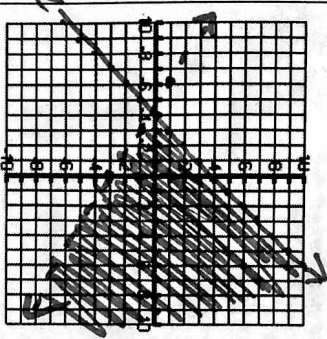


# 1-3 Homework

## Linear Inequalities with Context

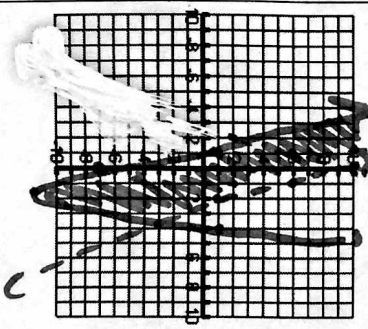
Solve the system of inequalities.

$$\begin{aligned} 2x+3y &> -9 & y &> -\frac{2}{3}x-3 \\ -x+y &\leq 4 & y &\leq x+4 \end{aligned}$$

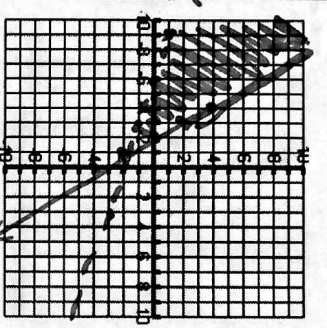


$$\begin{aligned} f(x) &> 2x^2 - 6x - 7 \\ 4x + f(x) &\leq 10 \end{aligned}$$

in class



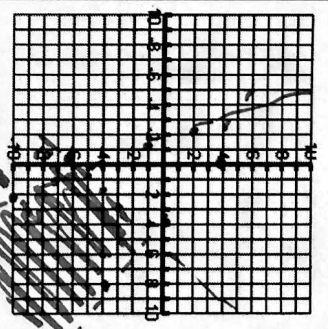
$$\begin{aligned} 4x+2y &\leq -8 \\ -x-3y &< 6 \end{aligned}$$



$$\begin{aligned} -(x-2)^2 + 7 &\leq y \\ -2x+2y &< -6 \end{aligned}$$

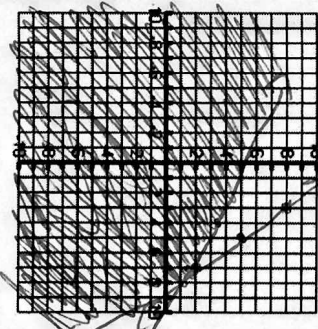


$$\begin{aligned} y &< -x+4 \\ y &< x-6 \\ y &> -3x-4 \end{aligned}$$

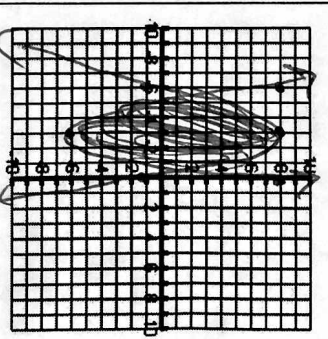


A sundae requires 3 ice-cream scoops and 4 strawberries, and a milkshake requires 2 ice-cream scoops and 6 strawberries. Ramses wants to make sundaes and milkshakes with at most 25 ice-cream scoops and 37 strawberries. Let's form a system of inequalities to represent his conditions. Let  $x$  denote the number of sundaes he makes and  $y$  the number of milkshakes he makes. Graph your solution on the following graph.

$$\begin{aligned} 3x+2y &\leq 25 \\ 4x+6y &\leq 37 \end{aligned}$$



$$\begin{aligned} f(x) &\leq -(x+3)^2 + 8 \\ f(x) &\geq 2(x+3)^2 - 6 \end{aligned}$$



For a person of height  $h$  (in inches), a healthy weight  $W$  (in pounds) is one that satisfies this system of inequalities:

$$\begin{aligned} W &\geq \frac{19h^2}{703} \\ W &\leq \frac{23h^2}{703} \end{aligned}$$

Graph the system for  $0 \leq h \leq 80$  using your graphing calculator. What is the range of healthy weights for a person 67 inches tall?