

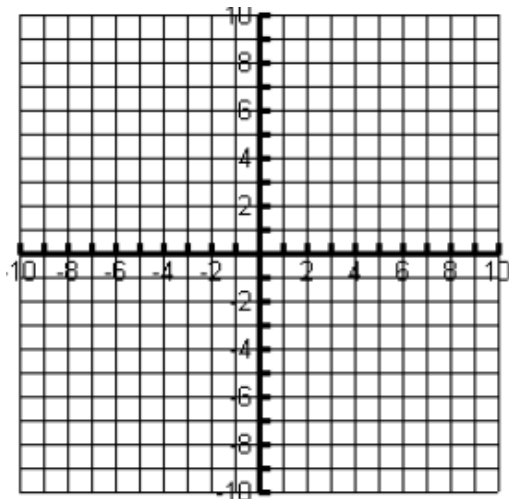
# 1-3 Homework

## Linear Inequalities with Context

**Solve the system of inequalities.**

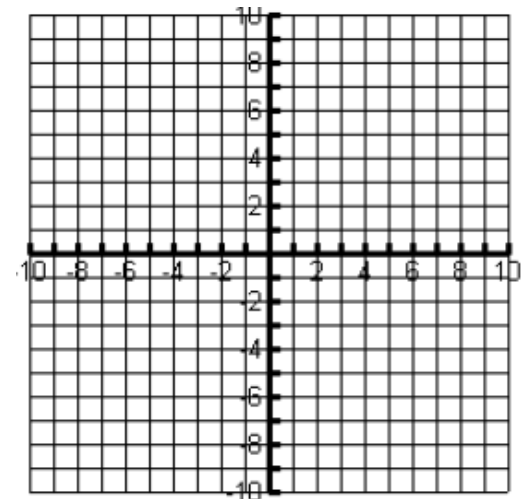
$$2x + 3y > -9$$

$$-x + y \leq 4$$



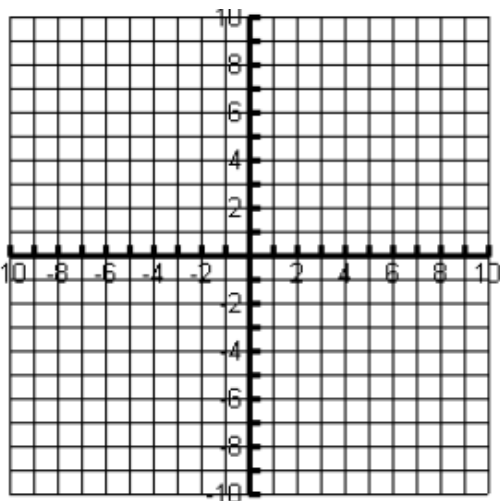
$$4x + 2y \leq -8$$

$$-x - 3y < 6$$



$$f(x) > 2x^2 - 6x - 7$$

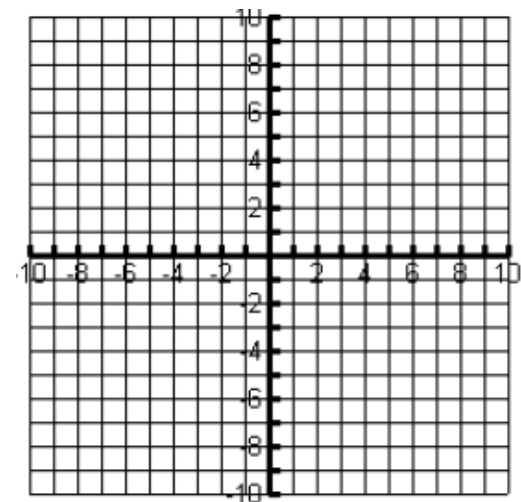
$$4x + f(x) \leq 10$$



$$-(x-2)^2 + 7 \leq y$$

$$-2x + 2y < -6$$

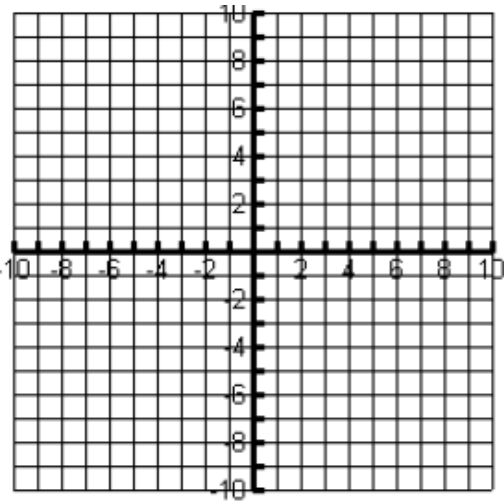
**\*\*Try to graph the quadratic function without a calculator.\*\***



$$y < -x + 4$$

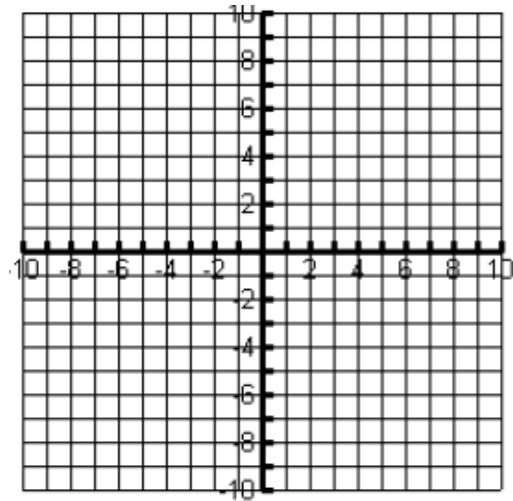
$$y < x - 6$$

$$y > -3x - 4$$

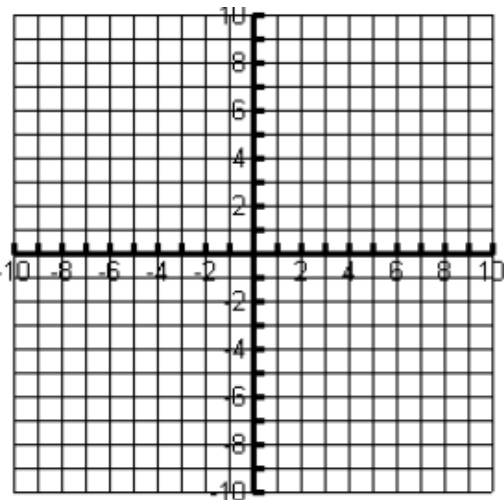


$$f(x) \leq -(x+3)^2 + 8$$

$$f(x) \geq 2(x+3)^2 - 6$$



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.



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

$$w \geq \frac{19h^2}{703}$$

$$w \leq \frac{25h^2}{703}$$

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?