C11 - 9.4 - Burgers and Fries Notes

$let\ b = \#\ burgers$
$let\ f = \#\ fries$

$burgers = \$3$
$fries = \$2$

$\$12\ to\ spend$

$3b + 2f \leq 12$

$1\ burger = 3 \times 1 = 3$
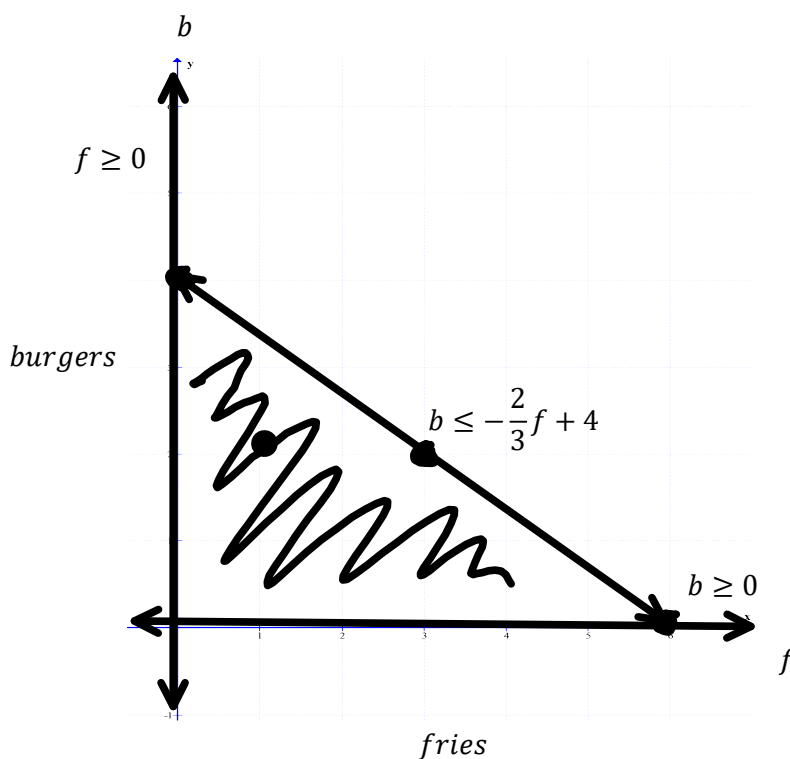$3\ burger = 3 \times 2 = 6$
$b\ burger = 3 \times b = 3b$

$$3b + 2f \leq 12$$
$$3b \leq -2f + 12$$
$$b \leq -\frac{2}{3}f + 4$$

$y = mx + b$

f	b
0	4
6	0

b

$f \geq 0$

burgers

$b \leq -\frac{2}{3}f + 4$

$b \geq 0$

f

fries

(f, b)
$(0,4) = \$12$
$(0,3) = \$9$
$(0,2) = \$6$
$(0,1) = \$3$
$(0,0) = \$0$
$(1,3) = \$11$
$(1,2) = \$8$
$(1,1) = \$5$
$(1,0) = \$2$
$(2,2) = 10$
$(2,1) = \$7$
$(2,0) = \$4$
$(3,2) = \$12$
$(3,1) = \$9$
$(3,0) = \$6$
$(4,1) = \$11$
$(4,0) = \$8$
$(5,0) = \$10$
$(6,0) = \$12$

Test Point: (1,1)

$b \geq 0$
$1 \geq 0$ ✓

$f \geq 0$
$1 \geq 0$ ✓

$b \leq -\frac{2}{3}f + 4$
$1 \leq -\frac{2}{3}(1) + 4$
$1 \leq \frac{10}{3}$ ✓

Restrictions

$0 \leq b \leq 4\ \ b \in W$

$0 \leq f \leq 6\ f \in W$

$W: Whole\ Numbers$