

## Shifting Budget Constraints: Income and Price

You have an income of \$60 to spend on two commodities. Commodity 1 costs \$12 per unit, and commodity 2 costs \$6 per unit.

- (a) Write down your budget equation.
- (b) If you spent all your income on commodity 1, how much could you buy?
- (c) If you spent all your income on commodity 2, how much could you buy?
- (d) Draw the budget line in the graph for the initial situation.
- (e) Suppose that the price of commodity 1 falls to \$5 while everything else stays the same. Write down your new budget equation.
- (f) Draw your new budget line in the graph.
- (g) Returning to the budget constraint in part (a), suppose now that your income falls to \$30. Write down your new budget equation and draw the corresponding budget line on the graph.
- (h) On your diagram, shade in the area representing commodity bundles that you can afford with the budget in part (f) but could not afford with the original budget in part (a). Then, shade in the area representing the bundles that you could afford with the original budget in part (a) but cannot afford with the budget in part (g).

## Solution

(a) The budget equation is:

$$12x_1 + 6x_2 = 60$$

(b) If you spent all your income on commodity 1, you could buy:

5

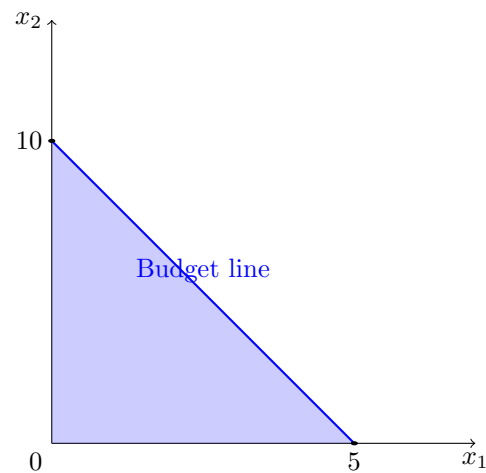
units

(c) If you spent all your income on commodity 2, you could buy:

10

units

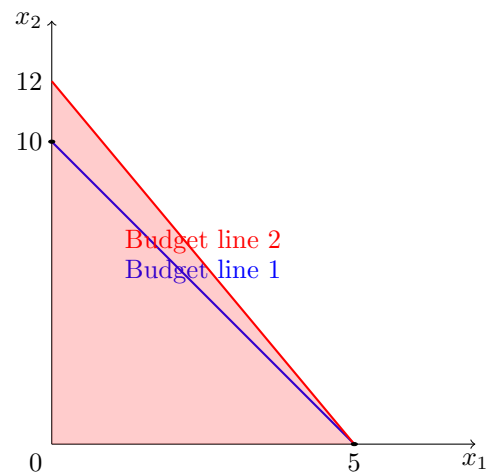
(d)



(e) The new budget equation is:

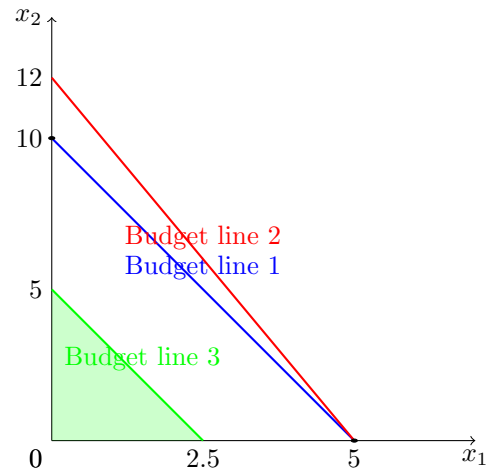
$$5x_1 + 5x_2 = 40$$

(f)

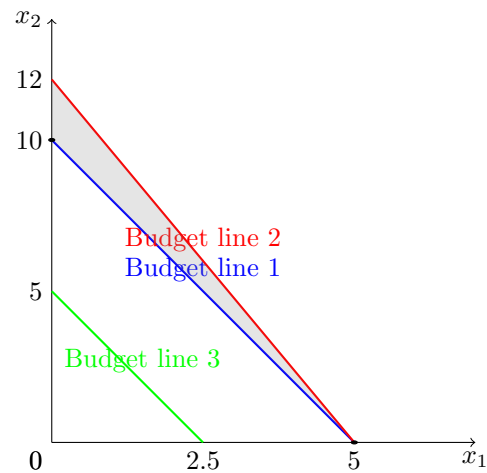


(g) The budget equation after your income falls to \$30 is:

$$5x_1 + 5x_2 = 30$$



(h) In this graph, the shaded region represents the set of goods that can be purchased under the new budget constraint in f but were not affordable under the original budget constraint in a.



In this graph, the shaded region represents the set of goods that were affordable under the original budget constraint in a but are no longer affordable under the new budget constraint in g.

