Utility $\longrightarrow$ Relation between the goods in terms
fn   of your preferences.

==$u = 2B.C$== .———(1)

objective : Maximize utility

$8B + C = 40$ ———(2)

$C = 40 - 8B$

$u = 2B(40 - 8B)$

$u = 80B - 16B^2$

Maximize utility

$\dfrac{du}{dB} = 80 - 32B \implies B = \dfrac{80}{32} = 2.5$

$(8 \times 2.5) + C = 40$

$20 + C = 40 \implies C = 20$

$8B + C = 40$

Income doubles $\implies$

$8B + C = 80$

Price doubles $\rightarrow$

$800B + 100C = 2000$

$\implies 8B + C = 20$