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|---------|---------------|------------|---------------|----------------|-----------------|
| 120 bis | flour 1 kg | eggs 12 | sugar 500g | butter 300g | choc. 120.5g |
| costs | 0.8€/kg | 0.20/egg | 1€/kg | 1.5€/kg | 3€/kg |

eggs 360 (12 · 30)
butter 18 (0.3 · 60)

| | | |
|------------------------|-------|-------|
| 1 packet = 10 biscuits | basic | choc. |
| | 3€ | 5€ |

We have to pay attention to units of measure!

Products are indicated for 120 biscuits
Selling units are 10 biscuits

We can choose different variables:

number of biscuits (all biscuits + iced ones or basic + iced ones)
number of packets (//)

If the production is large enough,
we can consider each variables as continuous

$x \geq 0$ number of basic biscuit packets
 $y \geq 0$ " " iced " "

| | | | |
|---------------------|--|-----------------|---------------------------------|
| qt of flour : | $\frac{1 \text{ kg}}{120} \cdot 10(x+y)$ | cost of flour : | $\frac{0.8}{120} \cdot 10(x+y)$ |
| " " eggs : | $\frac{12}{120} \cdot 10(x+y)$ | " " eggs : | $\frac{0.2}{12} (x+y)$ |
| " " sugar (in kg) : | $\frac{0.5}{12} (x+y)$ | " " sugar : | $\frac{0.5}{12} (x+y)$ |
| " " butter (kg) : | $\frac{0.3}{12} (x+y)$ | " " butter : | $\frac{0.3}{12} (x+y)$ |
| " " choc (kg) : | $\frac{0.6}{12} y$ | " " choc : | $\frac{0.6}{12} y$ |

$$\max \quad 3x + 5y - \left(\frac{0.8}{12} + \frac{0.2}{12} + \frac{0.5}{12} + \frac{0.3}{12} \right) (x+y) - \frac{0.6}{12} y =$$

$$\max \quad \left(3 - \frac{1.8}{12} \right) x + \left(5 - \frac{2.4}{12} \right) y = \frac{5.7}{2} x + 4.8 y = 2.85x + 4.8y$$

$$x+y \leq 360 \quad \max \text{ qt of eggs}$$

$$\frac{0.3}{12} (x+y) \leq 18 \quad \text{u u u butter}$$