

SOLUTION 3.1

1) Financial year 2015:

$$\text{Labour cost: } \frac{\text{€1,300 per month}}{1,000 \text{ units per month}} = \text{€1.30 per unit}$$

$$\text{Total cost: } \frac{1,300 + (2 \times 1,000) + 1,000}{1,000} = \text{€4.30 per unit}$$

2) Financial year 2016 (if the employee manages to pack 1,200 per month and receives €2,160 per month):

$$\text{Labour cost: } \frac{600 + (1.30 \times 1,200)}{1,200} = \text{€1.80 per unit} > 1.30$$

$$\text{Total cost: } \frac{600 + (1.30 \times 1,200) + (2 \times 1,200) + 1,000}{1,200} = \text{€4.63 per unit} > 4.30$$

3) Financial year 2016 (if the company pays the value of the time saved by the employee):

$$\text{€1.30 per unit} = \frac{X}{1,200}$$

$X = \text{€1,560}$ (€600 € per month + €960/ 1,200 units, that is €600 per month + €0.80 per packed unit).

$$\text{Total cost: } \frac{1,560 + (2 \times 1,200) + 1,000}{1,200} = \text{€4.13 per unit} < 4.30$$

Alternative way to calculate the premium:

Time saved by the employee: if he manages to manufacture 1,200 units instead of 1,000 in one month, he has saved 20% of the time, so he should receive 20% $1,300 = \text{€260}$ as a premium, so total labour costs = $\text{€1,300} + 260 = \text{€1,560}$.