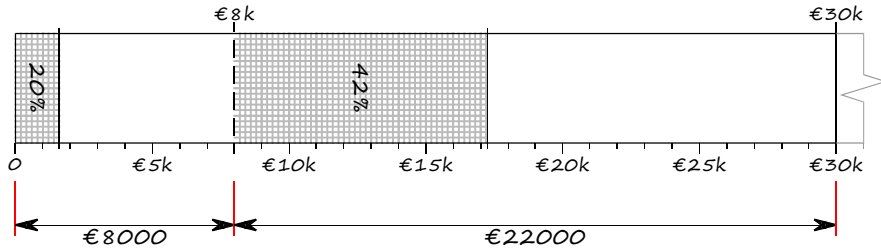


**Question 1**  
 A person has an income of €30000. Their tax credits for the year amount to €2500. The standard rate cut off point is €8000. The standard rate of tax is 20% and the higher rate is 42%. Calculate their take home pay.

DRAWING A DIAGRAM TO REPRESENT THIS INFORMATION CAN SOMETIMES BE HELPFUL IN TRYING TO ANSWER THIS TYPE OF QUESTION.



WE CAN SEE FROM THE DIAGRAM THAT THE GROSS TAX IS MADE UP OF TWO PARTS:

- 20% OF €8000 AND
- 42% OF THE REMAINDER.

- FIRST CALCULATE THE GROSS TAX,
- THEN CALCULATE THE NET TAX AND
- FINALLY CALCULATE THE TAKE HOME PAY.

FIRST CALCULATE THE GROSS TAX.

$$\begin{aligned} \text{GROSS TAX} &= \text{TAX AT STANDARD RATE} + \text{TAX AT HIGHER RATE} \\ &= (\text{€}8000 \times 0.2) + (\text{€}22000 \times 0.42) \\ &= \text{€}1600 + \text{€}9240 \\ &= \text{€}10840 \end{aligned}$$

THEN CALCULATE THE NET TAX.

$$\begin{aligned} \text{NET TAX} &= \text{GROSS TAX} - \text{TAX CREDIT} \\ &= \text{€}10840 - \text{€}2500 \\ &= \text{€}8340 \end{aligned}$$

FINALLY CALCULATE THE TAKE HOME PAY.

$$\begin{aligned} \text{TAKE HOME PAY} &= \text{GROSS SALARY} - \text{NET TAX} \\ &= \text{€}30000 - \text{€}8340 \\ &= \text{€}21660 \end{aligned}$$

APPLIED ARITHMETIC

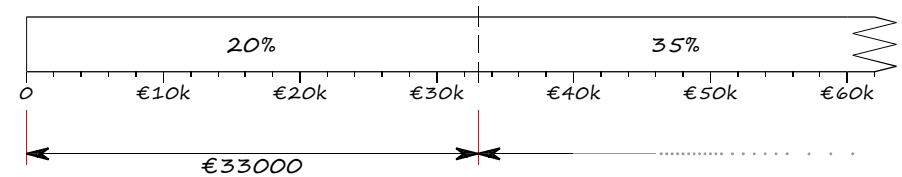
APPLIED ARITHMETIC

**Question 2**  
 Colm has a tax credit of €4200 a year and his standard rate cut off point is €33000. The standard rate of income tax is 20% and the higher rate is 35%. If Colm pays €13600 income tax for the year, find the gross salary.

IN THIS QUESTION WE ARE GIVEN THE STANDARD CUT OFF AND THE STANDARD RATE SO WE CAN CALCULATE THE TAX PAID AT THE STANDARD RATE. WE DON'T HAVE THE GROSS SALARY SO WE CANNOT CALCULATE THE TAX PAID AT THE HIGHER RATE. IF WE CALCULATE THE TAX PAID AT THE HIGHER RATE THEN WE CAN FIND OUT HOW MUCH OF COLM'S INCOME IS ABOVE THE STANDARD CUT OFF. ONE WE KNOW THIS WE CAN FIND THE GROSS SALARY.

GROSS SALARY

= STANDARD RATE CUT OFF + AMOUNT TAXED AT HIGHER RATE



CALCULATE THE TAX AT THE STANDARD RATE.

TAX AT THE STANDARD RATE

$$\begin{aligned} &= \text{STANDARD RATE CUT OFF POINT} \times \text{STANDARD RATE} \\ &= \text{€}33000 \times 0.2 = \text{€}6600 \end{aligned}$$

NEXT CALCULATE THE GROSS TAX.

$$\begin{aligned} \text{GROSS TAX} &= \text{NET TAX} + \text{TAX CREDIT} \\ &= \text{€}13600 + \text{€}4200 = \text{€}17800 \end{aligned}$$

FIRST CALCULATE THE TAX AT THE STANDARD RATE.

TAX AT THE STANDARD RATE

$$\begin{aligned} &= \text{STANDARD RATE CUT OFF POINT} \times \text{STANDARD RATE} \\ &= \text{€}33000 \times 0.2 = \text{€}6600 \end{aligned}$$

NEXT CALCULATE THE GROSS TAX.

$$\begin{aligned} \text{GROSS TAX} &= \text{NET TAX} + \text{TAX CREDIT} \\ &= \text{€}13600 + \text{€}4200 = \text{€}17800 \end{aligned}$$

NEXT FIND THE TAX COLM PAID AT THE HIGHER RATE.

TAX AT THE HIGHER RATE

$$\begin{aligned} &= \text{GROSS TAX} - \text{TAX AT THE STANDARD RATE CUT} \\ &= \text{€}17800 - \text{€}6600 = \text{€}11200 \end{aligned}$$

NEXT FIND THE AMOUNT TAXED AT THE HIGHER RATE

$$\begin{aligned} \text{€}11200 &= 35\% \\ \text{€}320 &= 1\% \\ \text{€}32000 &= 100\% \end{aligned}$$

GROSS SALARY

$$\text{€}33000 + \text{€}32000 = \text{€}65000$$