

Solution

Pupils may first work out the maximum amount of money that Andy could have to spend on the apartment:

- Bank mortgage is three times his salary = $3 \times \text{£}24\,000 = \text{£}72\,000$
- Savings + bank mortgage = $\text{£}22\,000 + \text{£}72\,000 = \text{£}94\,000$

Pupils must then work out the area of the apartment:

21 feet wide

- $5' + 16' = 21'$

OR

- $11' + 10' = 21'$

23 feet and 4 inches long

- $7' + 16' 4'' = 23' 4''$

They must then convert imperial dimensions into metric dimensions:

Wide: $21' \times 30 = 630 \text{ cm} = 6.3 \text{ m}$

Long: $23' \times 30 = 690 \text{ cm}$

4" is $\frac{1}{3}$ of a foot and $\frac{1}{3}$ of 30 cm is 10 cm

$690 \text{ cm} + 10 \text{ cm} = 700 \text{ cm} = 7 \text{ m}$

They then calculate the area of the apartment in square metres:

$6.3 \text{ m} \times 7 \text{ m} = 44.1 \text{ m}^2$

Location

Pupils calculate the cost of the apartment if it was in the Belfast city centre:

$44.1 \times 2196.65 = 96\,872.265 = \text{£}96\,872.27$

Pupils determine whether Andy can afford the apartment if it was in the Belfast city centre:

$\text{£}94\,000 - \text{£}96\,872.27 = -\text{£}2872.27$

Andy would be $\text{£}2872.27$ short of the money he needs to buy the apartment and cannot afford it on his current salary.

Pupils then calculate how much the apartment would cost if it was outside the city centre:

$44.1 \times 1875 = 82\,687.5 = \text{£}82\,687.50$

Pupils determine whether Andy could afford the apartment if it was outside the city centre:

$\text{£}94\,000 - \text{£}82\,687.50 = \text{£}11\,312.50$

Andy could afford the apartment if it was outside the city centre and have $\text{£}11\,312.50$ left over.



Buying a New Apartment (Continued)

Size

Pupils calculate the size of apartment that Andy can afford in the city centre:

$$£94\,000 \div £2196.65 \text{ per square metre} \approx 42.79 \text{ m}^2$$

Andy could afford an apartment covering an area of 42 m².

Pupils then calculate the size of apartment that Andy can afford just outside the city centre:

$$£94\,000 \div £1875 \text{ per square metre} \approx 50.13 \text{ m}^2$$

Andy could afford an apartment just outside the city centre covering an area of 50 m².

Salary

Pupils calculate the salary Andy would need to have in order to be able to afford the apartment in the city centre:

$$£96\,872.27 - £22\,000 = £74\,872.27$$

$$£74\,872.27 \div 3 \approx £24\,957.42$$

$$£24\,957.42 - £24\,000 \approx £958$$

Andy would need to earn an extra £958 a year.

The pupils could give Andy the following possible suggestions as financial advice:

1. Andy cannot afford the apartment as it is too expensive and big, he is £2872.27 short.
2. He could afford the apartment if it was outside the city centre – in fact, he would have £11 312.50 to spare.
3. If he prefers to live in the city, he could afford a slightly smaller new build apartment if it covers an area of up to 42 m².
4. If he was to live outside the city he could afford a bigger new build apartment that covers an area of up to 50 m².
5. He could renegotiate his salary and ask for an extra £958 a year.
6. If he really wants the apartment in the city centre, he could borrow the extra £2873 from somewhere/someone else.
7. He could try to negotiate a bigger mortgage.
8. He could try and negotiate a deal to buy the apartment in Belfast city centre for less than what it should cost.