

Question #75802, Math / Algebra

Condition

1. A company analyses its profits for four consecutive years, from 2007 - 2010. The profit made in 2007 was twice that in 2009. The profit made in 2008 was R14 million more than the profit made in 2009, while the profit made in 2010 was R 4 million less than the profit made in 2007. If the total profit made in these four years is R 58 million, determine the profit made in each year.
2. The total cost of two calculators and four math sets is R 440.00. If a calculator costs R 40 more than a math set, what is the cost of each?

Solution of first part (1)

Let the profit in 2009 is X.

So, We have next:

- Profit in 2007 is $(2 * x)$ because "The profit made in 2007 was twice that in 2009."
- Profit in 2008 is $(x+14)$ because "The profit made in 2008 was R14 million more than the profit made in 2009"
- Profit in 2009 is x as we decided before.
- Profit in 2010 is $(2 * x - 4)$ because "the profit made in 2010 was R 4 million less than the profit made in 2007".

All profit of 4 years is 58 million.

Let's make a equality:

Profit made in 2007 + Profit made in 2008 + Profit made in 2009 + Profit made in 2010 = 58

$$2 * x + x + 14 + x + 2 * x - 4 = 58$$

$$2 * x + x + x + 2 * x = 58 + 4 - 14$$

$$6 * x = 48$$

$$x = 8$$

What means that the profit made in 2009 is 8 million. Then:

- Profit in 2007 is $(2 * x)$, what equal to $(2 * 8) = 16$ million. *Profit made in 2007 was 16 million.*
- Profit in 2008 is $(x+14)$, what equal to $(8+14) = 22$ million. *Profit made in 2008 was 22 million.*
- Profit in 2009 is x , what equal to 8. *Profit made in 2009 was 8 million.*
- Profit in 2010 is $(2 * x - 4)$, what equal to $(2 * 8 - 4) = 12$ million. *Profit made in 2010 was 12 million.*

Answer of first part (1):

✓ **Profit made in 2007 was 16 million.**

Profit made in 2008 was 22 million.

✓ **Profit made in 2009 was 8 million**

Profit made in 2010 was 12 million.

Solution of second part (2)

Let the cost of calculator be X and cost of math set is Y.

The total cost of two calculators and four math sets is R 440.00. What means:

$$2 * x + 4 * y = 440.00$$

If a calculator costs R 40 more than a math set. What means:

$$x = 40 + y$$

Sum our two equals together we have:

$$2 * (40 + y) + 4 * y = 440.00$$

$$80 + 2 * y + 4 * y = 440.00$$

$$6 * y = 440.00 - 80$$

$$6 * y = 360$$

$$y = 60$$

What means that one math set costs 60. And one calculator is $(40+y)=(40+60)=100$.

Answer of second part (2):

One math set costs 60 and one calculator costs 100.

Answer provided by AssignmentExpert.com