11) Question: In the local super market, the sale prices of radiant heaters and hot air blowers go down after December 31, till the inventory is sold out. The sale prices are based on the following formula,

   sale price of Radiant Heater = $10 $(0.75) m,
   sale price of Hot Air Blower = $12 $(1.25) m,

where, m is the number of months after December 31.
How many months after December 31, were the prices of the two electrical appliances same?
What was the price of the Hot Air Blower then? nc

A) after 4 months, the price of the Hot Air Blower was $10
B) after 6 months, the price of the Hot Air Blower was $10
C) after 6 months, the price of the Hot Air Blower was $7
D) after 4 months, the price of the Hot Air Blower was $7

For speed, while solving something similar, only THINK the words in blue; WRITE only the words in other COLORS.

Given: 1) The sale prices of RH and HB go down after December 31, till the inventory is sold out
      2) Sale price of Radiant Heater = RH = $10 $(0.75) m,
      3) Ssale price of Hot Air Blower = HB = $12 $(1.25) m,

Solve: How many months after December 31, were the prices of the two electrical appliances same?
      What was the price of the Hot Air Blower then?

Road Map of Solution:
First   Step: Write both equations.
Second Step: To find "m" the number of months after December 31, compare the RHS of both equations
Third   Step: To find the price of HB, substitute the value of "m" in the equation for the Sale Price of HB.

First   Step: Write both equations.
   sale price of Radiant Heater = $10 - $(0.75) m
              RH   = $10 - $(0.75) m   . . . .   equation #1

   sale price of Hot Air Blower   = $12 - $(1.25) m
              HB   = $12 - $(1.25) m   . . . .   equation #2

Second Step: To find "m" the number of months after December 31, compare the RHS of both equations, Therefore,
    $10 - $(0.75) m   = $12 - $(1.25) m

Explanation: If order to find the value of "m", we will rewrite the above equation such that we are left with only the variable "m" and its coefficient on one side of the equation. In order to do that we will subtract $10 from both sides fo the equation. Doing so changes only the look of the equation.

{ $10 - $(0.75) m} - $10   = { $12 - $(1.25) m } - $10. . . . .   equation #3
  $10 - $(0.75) m   - $10   = $12 - $(1.25) m   - $10
       - $(0.75) m   = $2 - $(1.25) m
{   - $(0.75) m} + $(1.25) m = { $2 - $(1.25) m } + $(1.25) m
{   - $(0.75) m} + $(1.25) m = $2 - $(1.25) m   + $(1.25) m
             $(0.50) m   = $2

$$\frac{1}{\$(0.50)} \times \{ \$(0.50) \ m\} = \{ \ \$2\} \times \frac{1}{\$(0.50)}$$

$$\frac{1}{\$(0.50)} \times \$(0.50) \ m \ = \ \$2 \times \frac{1}{\$(0.50)}$$

$$\frac{1}{1} \times 1 \times m \ = \ \frac{2 \times 1}{0.50}$$

$$1 \times 1 \times m \ = \ \frac{2}{0.50}$$