

47 (a) The following three equations must be solved, using the equation  $P = a + bS + cC$ .

$$122 = a + b(1500) + c(8)$$

$$130 = a + b(2000) + c(5)$$

$$158 = a + b(2200) + c(10)$$

These equations can be written in matrix form as follows.

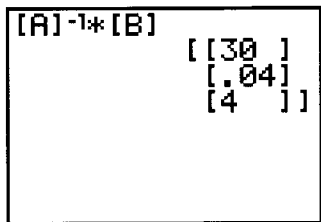
$$AX = \begin{bmatrix} 1 & 1500 & 8 \\ 1 & 2000 & 5 \\ 1 & 2200 & 10 \end{bmatrix} \begin{bmatrix} a \\ b \\ c \end{bmatrix} = \begin{bmatrix} 122 \\ 130 \\ 158 \end{bmatrix}$$

The solution is given by  $X = A^{-1}B$  as shown in *Figure 47*. It is  $a = 30$ ,  $b = 0.04$ , and  $c = 4$ .

The equation relating the variables is  $P = 30 + 0.04S + 4C$

(b) A house with 1800 square feet and a condition of 7 might sell for \$130,000 as shown.

$$P = 30 + 0.04S + 4C = 30 + 0.04(1800) + 4(7) = 130$$



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[A]^-1*[B]
[[30 ]
[.04]
[4  ]]
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Figure 47