# Answer on Question #45302 - Economics - Other

Data were collected from a random sample of 220 home sales from a community in 2003.

estimated(Price) = 119.2 + 0.485BDR + 23.4BATH + 0.156Hsize + 0.002Lsize + 0.090Age − 48.8Poor
where Price-selling price, BDR-number of bedroom, BATH-number of bathroom, Hsize- size of house, Lsize-size of lot, Age-age of house and Poor is a binary variable; when condition of house is reported 'poor' then Poor=1
$\bar{R}^2$ =0.72 SER=41.5

a. Suppose that a homeowner converts part of an existing family room in her house into a new bathroom. What is the expected increase in the value of the house?
b. Suppose that a homeowner adds a new bathroom to her house, which increases the size of the house by 100 square feet. What is the expected increase in the value of the house?
c. What is the loss in value if a homeowner lets his house run down so that its condition becomes "poor"?
d. Compute R square for the regression.

## Solution for a)
In this case only the number of bathrooms increases by 1. The rest of regressors stay the same. Previous Price and new Price differ only in *BATH:*
23.4 (*BATH* + 1) − 23.4 *BATH* = 23.4

In thousands of dollars expected increase in the value of the house would be equal to $23,400.

## Answer for a)
$23,400

## Solution for b)
*BATH* changes by 1 and *Hsize* changes by 100. The rest of regressors stay the same.
1 * 23.4 + 100 * 0.156 = 23.4 + 15.6 = 39.0

Or in thousands of dollars expected increase in the value of the house would be equal to $39,000.

## Answer for b)
$39,000

## Solution for c)
In this case only regressor *Poor* changes to 1.
-48.8 * 1 = -48.8

In thousands of dollars the loss in the value of the house would be equal to $48,800.

## Answer for c)

$48,800

## Solution for d)

We know that

$$\bar{R} = 1 - (1 - R)\frac{n - 1}{n - p - 1}$$

where $n$ – sample size; $p$ – number of regressors.

Hence

$$R \quad 1 - (1 - \bar{R})\frac{n - p - 1}{n - 1}$$

$$R \quad 1 - (1 - 0.72)\frac{220 - 6 - 1}{220 - 1} \quad 0.7277$$

## Answer for d)

$R^2 = 0.7277$