Answers to Small Project 1

(i) The estimated equation is

$$\widehat{price} = -19.32 + 0.128\, sqrft + 15.20\, bdrms$$
$$n = 88,\ R^2 = 0.632.$$

(ii) Holding square footage constant, $\Delta\widehat{price} = 15.20\, \Delta bdrms$, and so price increases by 15.20, which means \$15,200.

(iii) Now $\Delta\widehat{price} = 0.128\, \Delta sqrft + 15.20\, \Delta bdrms = 0.128(140) + 15.20 = 33.12$, or \$33,120. Because the size of the house is increasing, this is a much larger effect than in (ii).

(iv) About 63.2%.

(v) The predicted price is –19.32 + 0.128(2,438) + 15.20(4) = 353.544, or \$353,544.

(vi) From part (v), the estimated value of the home based only on square footage and number of bedrooms is \$353,544. The actual selling price was \$300,000, which suggests the buyer underpaid by some margin. But, of course, there are many other features of a house (some that we cannot even measure) that affect price, and we have not controlled for these.