Completing the Square to Solve Word Problems

1. A rectangular field is to be enclosed on one side by a barn and on the other three sides by 400m of fencing. Determine the dimensions of the field if the area is to be a maximum.
2. Find two integers whose difference is 12 and whose product is a minimum.

Revenue Problems:

1. A motel has 30 rooms. The owner decides to raise the price of each room from the current price of $40. Every $2 increase in price results in one less room rented out. What price of each room would maximize revenue?

|  |  |  |
| --- | --- | --- |
| #of rooms | Price | Revenue |
| 30 | 40 | 30\*40=1200 |
| 29 | 42 |  |
| 28 |  |  |
|  | 44 |  |
|  |  |  |
|  |  |  |
|  |  |  |

1. Calculators are sold to students for 20 dollars each. Three hundred students are willing to buy them at that price. For every 5 dollar increase in price, there are 30 fewer students willing to buy the calculator. What selling price will produce the maximum revenue and what will the maximum revenue be?

|  |  |  |
| --- | --- | --- |
| #of Calculators | Price | Revenue |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

Homework: p. 271 #16, 23, 24 & p. 313 #17c