

- Setting # pumps to 174.

| Blue Ridge Hot Tubs | | | |
|---------------------|-----------|-------------|----------------|
| | Aqua-Spas | Hydro-Luxes | |
| Number to Make | 174 | 0 | Total Profit |
| Unit Profits | \$350 | \$300 | \$60,900 |
| Constraints | | | Used Available |
| - Pumps Required | 1 | 1 | \$174 174 |
| - Labor Required | 9 | 6 | \$1,566 1566 |
| - Tubing Required | 12 | 16 | \$2,088 2880 |

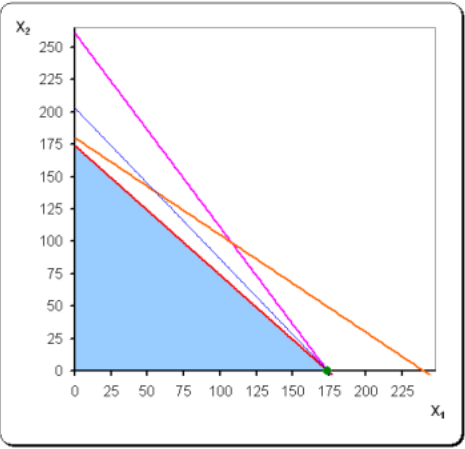
Adjustable Cells

| Cell | Name | Final Value | Reduced Cost |
|--------|----------------------------|-------------|--------------|
| \$B\$5 | Number to Make Aqua-Spas | 174 | 0 |
| \$C\$5 | Number to Make Hydro-Luxes | 0 | 0 |

Constraints

| Cell | Name | Final Value | Shadow Price | Constraint R.H. Side | Allowable Increase | Allowable Decrease |
|---------|------------------------|-------------|--------------|----------------------|--------------------|--------------------|
| \$D\$9 | - Pumps Required Used | \$174 | \$200 | 174 | 33 | 0 |
| \$D\$10 | - Labor Required Used | \$1,566 | \$17 | 1566 | 0 | 522 |
| \$D\$11 | - Tubing Required Used | \$2,088 | \$0 | 2880 | 1E+30 | 792 |

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當有0時，
意即有degeneracy

When the solution is degenerate:

1. The methods mentioned earlier for detecting alternate optimal solutions cannot be relied upon.

(你吾可以好似之前甘interpret 成有alternate sol from variable sections, in which when Allow. Incr. or decr ge value 係 0.)

2. The reduced costs for the changing cells may not be unique. Also, the objective function coefficients for changing cells must change by at least as much as (and possibly more than) their respective reduced costs before the optimal solution would change.

3. The allowable increases and decreases for the objective function coefficients still hold and, in fact, the coefficients may have to be changed beyond the allowable increase and decrease limits before the optimal solution changes.

4. The given shadow prices and their ranges may still be interpreted in the usual way but they may not be unique.

That is, a different set of shadow prices and ranges may also apply to the problem (even if the optimal solution is unique!). (可能有第二種scenario with diff. Shadow price.)