Part one

RMS, Inc. produces three raw materials that are blended together (mixed together) to produce two products: a fuel additive and a solvent base. Each kilogram of fuel additive is a mixture of 2/5 kilogram of material 1 and 3/5 kilogram of material 3. A kilogram of solvent base is a mixture of 1/2 kilogram of material 1, 1/5 kilogram of material 2, and 3/10 kilogram of material 3. The profit is $40 for each kilogram of fuel additive produced and $30 for each kilogram of solvent base produced.

         RMS's has available the following quantities of raw materials:

|  |  |
| --- | --- |
| Material 1 | 20 Kilograms |
| Material 2 | 5 Kilograms |
| Material 3 | 21 Kilograms |

        What is the linear programming model for this problem? What is the maximum profit?

Part two

  Referring to the following table, what is the minimum transportation cost?

Values not in the margins are cost per unit, $.  

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | **DESTINATION** |  |  |
| **ORIGIN** | **1** | **2** | **3** | **SUPPLY** |
| **1** | **10** | **14** | **10** | **210** |
| **2** | **12** | **17** | **20** | **140** |
| **3** | **11** | **11** | **12** | **150** |
| **4** | **18** | **8** | **13** | **160** |
| **DEMAND** | **220** | **220** | **220** |  |