Parcial 1

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1 30%

$X_{ij} = Cantidad\ del\ producto\ j\ elaborados\ por\ el\ taller\ i\ en\ una\ hora$

$maximizar Z = 70(X_{11}+X_{21})+75(X_{12}+X_{22}+80(X_{13}+X_{23})-X_{11}(\frac{1500}{40})-X_{12}(\frac{1500}{30})-X_{13}(\frac{1500}{20})-X_{21}(\frac{1200}{30})-X_{22}(\frac{1200}{25})-X_{23}(\frac{1200}{20})$

$$S.A.:$$

$$X_{11} \geq 40, X_{12} \geq 30, X_{13} \geq 20, X_{21} \geq 30, X_{22} \geq 25, X_{23} \geq 20$$

$$X_{11}(\frac{1500}{40}) + X_{12}(\frac{1500}{30}) + X_{13}(\frac{1500}{20}) \leq 1500$$

$$X_{21}(\frac{1200}{30}) + X_{22}(\frac{1200}{25}) + X_{23}(\frac{1200}{20}) \leq 1200$$

$$X_{ij} \geq 0$$

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2 30%

$$X_{ij} = Cantidad\ de\ ingrediente\ i\ utilizado\ en\ el\ alimento\ j$$

$$maximizar Z = 30(X_{11}+X_{21}+X_{31})(\frac{precio}{Lb}*(Lb))+35(X_{12}+X_{22}+X_{32})*(\frac{precio}{Lb}*(Lb))+50(X_{13}+X_{23}+X_{33})*(\frac{precio}{Lb}*(Lb))-15(X_{11}+X_{12}+X_{13})*(\frac{precio}{Lb}*(Lb))-12(X_{21}+X_{22}+X_{33})*(\frac{precio}{Lb}*(Lb))-19(X_{31}+X_{32}+X_{33})*(\frac{precio}{Lb}*(Lb))$$

$$S.A.:$$

$$X_{11}+X_{12}+X_{13} \leq 2400[Lb]$$

$$X_{21}+X_{22}+X_{23} \leq 1800[Lb]$$

$$X_{31}+X_{32}+X_{33} \leq 1200[Lb]$$

$$Cachorros:$$

$$X_{11} \geq 0.15(X_{11}+X_{21}+X_{31}[Lb]$$

$$X_{21} \geq 0.15(X_{11}+X_{21}+X_{31}[Lb]$$

$$X_{31} \geq 0.15(X_{11}+X_{21}+X_{31}[Lb]$$

$$Adultos:$$

$$X_{32} \leq 0.4(X_{12}+X_{22}+X_{32}[Lb]$$

$$Adultos:$$

$$X_{13} \geq 0.4(X_{13}+X_{23}+X_{33}[Lb]$$

$$X_{ij} \geq 0$$

3 20%

4 20%

$$X_i = Number\ de\ empleados\ que\ inician\ la\ jornada\ en\ la\ hora\ i$$

$$i = 12p.m., 4a.m., 8a.m., 12a.m., 4p.m., 8p.m.$$

$$MinimizarZ = X_1, X_2, X_3, X_4, X_5, X_6$$

$$S.A. :$$

$$X_1 + X_6 \geq 3$$

$$X_1 + X_2 \geq 5$$

$$X_2 + X_3 \geq 10$$

$$X_3 + X_4 \geq 6$$

$$X_4 + X_5 \geq 10$$

$$X_5 + X_6 \geq 8$$

$$X_i \geq 0$$