Problem1.

The SAS System

The REG Procedure
Model: MODEL1
Dependent Variable: Weight_father

Number of Observations Read	150
Number of Observations Used	150

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	23222	23222	55.19	<.0001
Error	148	62274	420.77118		
Corrected Total	149	85496			

Root MSE	20.51271	R-Square	0.2716
Dependent Mean	182.08667	Adj R-Sq	0.2667
Coeff Var	11.26535		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|
Intercept	1	-129.02666	41.91228	-3.08	0.0025
Height_father	1	4.49196	0.60466	7.43	<.0001

According to the picture from the Result Viewer:
The correlation coefficient is 0.2716 (R-Square).
The regression equation for father is Y=4.49196*X-129.02666.

The SAS System

The REG Procedure
Model: MODEL1
Dependent Variable: Weight_mother

Number of Observations Read	150
Number of Observations Used	150

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	14400	14400	16.60	<.0001
Error	148	128380	867.43018		
Corrected Total	149	142780			

Root MSE	29.45217	R-Square	0.1009
Dependent Mean	146.97333	Adj R-Sq	0.0948
Coeff Var	20.03912		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|
Intercept	1	-108.17272	62.66737	-1.73	0.0864
Height_mother	1	3.98085	0.97703	4.07	<.0001

According to the picture from the Result Viewer:
The correlation coefficient is 0.1009 (R-Square).
The regression equation for mother is Y=3.98085*X-108.17272.

Problem2.(1)

The SAS System

The REG Procedure
Model: MODEL1
Dependent Variable: INCOME

Number of Observations Read	294
Number of Observations Used	294

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	2516.98267	2516.98267	11.14	0.0010
Error	292	65983	225.96874		
Corrected Total	293	68500			

Root MSE	15.03226	R-Square	0.0367
Dependent Mean	20.57483	Adj R-Sq	0.0334
Coeff Var	73.06139		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|
Intercept	1	27.77274	2.32808	11.93	<.0001
AGE	1	-0.16206	0.04856	-3.34	0.0010

According to the picture from the Result Viewer:
The regression equation for mother is Y= -0.16206*X+27.77274

(2)Add and then delete Age=42 and Income=120, the regression is as following:

The REG Procedure
Model: MODEL1
Dependent Variable: INCOME

Number of Observations Read	295
Number of Observations Used	295

Analysis of Variance					
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	2594.98316	2594.98316	10.04	0.0017
Error	293	75757	258.55538		
Corrected Total	294	78352			

Root MSE	16.07966	R-Square	0.0331
Dependent Mean	20.91186	Adj R-Sq	0.0298
Coeff Var	76.89251		

Parameter Estimates					
Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|
Intercept	1	28.21889	2.48924	11.34	<.0001
AGE	1	-0.16455	0.05194	-3.17	0.0017

Add and then delete Age=80 and Income=150, the regression is as following:

The REG Procedure
Model: MODEL1
Dependent Variable: INCOME

Number of Observations Read	295
Number of Observations Used	295

Analysis of Variance					
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	1232.87159	1232.87159	4.30	0.0389
Error	293	83961	286.55657		
Corrected Total	294	85194			

Root MSE	16.92798	R-Square	0.0145
Dependent Mean	21.01356	Adj R-Sq	0.0111
Coeff Var	80.55742		

Parameter Estimates					
Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|
Intercept	1	26.03193	2.61245	9.96	<.0001
AGE	1	-0.11268	0.05433	-2.07	0.0389

Add and then delete Age=15 and Income=180, the regression is as following:

The SAS System

The REG Procedure
Model: MODEL1
Dependent Variable: INCOME

Number of Observations Read	295
Number of Observations Used	295

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	4221.72124	4221.72124	13.80	0.0002
Error	293	89608	305.83058		
Corrected Total	294	93830			

Root MSE	17.48801	R-Square	0.0450
Dependent Mean	21.11525	Adj R-Sq	0.0417
Coeff Var	82.82170		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|
Intercept	1	30.37481	2.69218	11.28	<.0001
AGE	1	-0.20895	0.05624	-3.72	0.0002