Sep 03, 07 4:46 **x3_2.sas** Page 1/1

```
/* x3_2.sas */
/* Purpose:  */

title1 'Example 3.2.';

data a;
input y a b;
c=log(b);
cards;
 1.1 1 1
 4.9 1 3
 6.9 1 4
11.1 1 6
;

proc print data=a;
title2 'List of data.';

proc glm data=a;
  model y=a b c/noint xpx inverse solution;
title2 'Analysis by GLM.';

run;
```

```
                              Example 3.2.                                  1
                             List of data.

                    Obs      y     a    b       c

                     1      1.1    1    1    0.00000
                     2      4.9    1    3    1.09861
                     3      6.9    1    4    1.38629
                     4     11.1    1    6    1.79176

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                              Example 3.2.                                  2
                            Analysis by GLM.

                           The GLM Procedure

                Number of Observations Read           4
                Number of Observations Used           4

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                              Example 3.2.                                  3
                            Analysis by GLM.

                           The GLM Procedure

                            The X'X Matrix

                          a               b               c               y

 a                        4              14     4.276666119              24
 b                       14              62    19.591571126             110
 c              4.276666119    19.591571126    6.3391630121    34.837161415
 y                       24             110    34.837161415          196.04

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                              Example 3.2.                                  4
                            Analysis by GLM.

                           The GLM Procedure

                          X'X Inverse Matrix

                          a               b               c               y

 a             1.4438574918    -0.778821613    1.4329088214    -1.099321671
 b             -0.778821613    1.1092547586    -2.902793864    2.2012063383
 c             1.4329088214    -2.902793864    8.1623109791    -0.565768284
 y             -1.099321671    2.2012063383    -0.565768284    0.0007839309
```



```
                              Example 3.2.                                  5
                            Analysis by GLM.

                           The GLM Procedure

Dependent Variable: y

                                             Sum of
 Source                      DF             Squares     Mean Square    F Value    Pr > F

 Model                        3     196.0392161      65.3464054    83357.4    0.0025

 Error                        1       0.0007839       0.0007839

 Uncorrected Total            4     196.0400000


              R-Square     Coeff Var      Root MSE        y Mean

              0.999996      0.466646      0.027999      6.000000

NOTE: No intercept term is used: R-square is not corrected for the mean.


 Source                      DF       Type I SS     Mean Square    F Value    Pr > F

 a                            1     144.0000000     144.0000000     183690    0.0015
 b                            1      52.0000000      52.0000000    66332.4    0.0025
 c                            1       0.0392161       0.0392161      50.02    0.0894


 Source                      DF     Type III SS     Mean Square    F Value    Pr > F

 a                            1      0.83699960      0.83699960    1067.70    0.0195
 b                            1      4.36807623      4.36807623    5572.02    0.0085
 c                            1      0.03921607      0.03921607      50.02    0.0894


                                                 Standard
        Parameter           Estimate                Error    t Value    Pr > |t|

        a               -1.099321671           0.03364349     -32.68      0.0195
        b                2.201206338           0.02948863      74.65      0.0085
        c               -0.565768284           0.07999180      -7.07      0.0894
```