

```

/* Here we use SAS as a calculator for
the regression estimator
*/

```

```

data ex6_9 ;
input student achieve final @@ ;
cards ;
1 39 65 2 43 78 3 21 52
4 64 82 5 57 92 6 47 89
7 28 73 8 75 98 9 34 56
10 52 75
;

```

student achieve final

student	achieve	final

```

proc plot ;
plot final*achieve ; run ;
proc means ;
var final achieve ; run ;

```

student achieve final bnum bdenom

student	achieve	final	bnum	bdenom

```

data regcalc ; set ex6_9 ;
bnumerator = (achieve -46)*(final -76) ;
bdenominator = (achieve -46)**2 ;
proc means sum data = regcalc ;
var bnumerator bdenominator ;
run ;

```

Σ bnum Σ bdenom

```

data msecalc ; set ex6_9 ;
finalhat = 76 + .7656*(achieve -46) ;
sqerror = (final -finalhat)**2 ;
proc means sum data = msecalc ;
var sqerror ;
run ;

```

$$b = \frac{\Sigma \text{bnum}}{\Sigma \text{bdenom}} = .7656$$

```

/* Here we use SAS as a calculator for
the difference estimator
*/

```

```

data ex6_10 ;
input sample auditvalue bookvalue @@ ;
d = auditvalue -bookvalue ;
cards ;
1 9 10 2 14 12 3 7 8 4 29 26
5 45 47 6 109 112 7 40 36 8 238 240
9 60 59 10 170 167
;

```

student achieve final finalhat sqerror

student	achieve	final	finalhat	sqerror

Σ sqerror

```

proc plot data = ex6_10 ;
plot auditvalue*bookvalue ;
proc means data = ex6_10 ;
var auditvalue bookvalue ;
run ;

```

$$MSE = \frac{\Sigma \text{sqerror}}{(n-2)} = 606.0/8 = 75.8$$

```

data msecalc6_10 ; set ex6_10 ;
sqerror = (d - .4)**2 ;
proc means sum data = msecalc6_10 ;
var sqerror ;
run ;

```