

Problem Set 12

1. Four standard chemical procedures are used to determine the magnesium content in a certain chemical compound. Each procedure is used four times on a given compound with the following data resulting.

pro	ce	du	ra
A	B	C	D
76.42	80.41	74.20	86.20
78.62	82.26	72.68	86.04
80.40	81.15	78.84	84.36
78.20	79.20	80.32	80.68

Do the data indicate that the procedures yield equivalent results?

R: test statistics is 7.4738

2. In a test of the ability of a certain polymer to remove toxic wastes from water, experiments were conducted at three different temperatures. The data below give the percentages of the impurities that were removed by the polymer in 21 independent attempts.

Low temperature	Medium temperature	High temperature
42	36	33
41	35	44
37	32	40
29	38	36
35	39	44
40	42	37
32	34	45

Test the hypothesis that the polymer performs equally well at all three temperatures. Use the (a) 5 percent level of significance and (b) 1 percent level of significance.

R: test statistics is 1.332