

Paired t Test – Test Statistic

For each of the following pairs of hypotheses and data sets, calculate the test statistic for the sign test

Pair	A	B	C	D	E	F	G	H	I
1	20	22	24	25	21	20	23	26	27
2	21	24	25	26	23	25	24	21	25
d									

$H_0: \mu_d = 0$ $H_1: \mu_d \neq 0$ $\bar{d} = \underline{\hspace{2cm}}$ $s_d^2 = \underline{\hspace{2cm}}$ Test Statistic: $\underline{\hspace{2cm}}$

Subject	A	B	C	D	E	F	G	H	I	J	K	L
before	2.5	2.6	2.8	2.4	2.1	2.0	2.3	2.5	2.6	2.8	2.7	2.2
after	2.6	2.7	2.4	2.5	2.3	2.0	2.4	2.6	2.2	2.9	2.5	2.3
d												

$H_0: \mu_d = 0$ $H_1: \mu_d < 0$ (after – before) $\bar{d} = \underline{\hspace{2cm}}$ $s_d^2 = \underline{\hspace{2cm}}$ Test Statistic: $\underline{\hspace{2cm}}$

Group	A	B	C	D	E	F	G	H	I
Test 1	56	64	52	68	64	61	57	59	61
Test 2	59	58	56	59	57	54	60	52	58
d									

$H_0: \mu_d = 0$ $H_1: \mu_d > 0$ (T1 – T2) $\bar{d} = \underline{\hspace{2cm}}$ $s_d^2 = \underline{\hspace{2cm}}$ Test Statistic: $\underline{\hspace{2cm}}$

Team	A	B	C	D	E	F
Weekday	1142	1156	1132	1125	1147	1154
Weekend	1245	1084	1156	1237	1014	1162
d						

$H_0: \mu_d = 0$ $H_1: \mu_d \neq 0$ $\bar{d} = \underline{\hspace{2cm}}$ $s_d^2 = \underline{\hspace{2cm}}$ Test Statistic: $\underline{\hspace{2cm}}$

Couple	A	B	C	D	E	F	G	H	I
Husband	8.4	6.5	2.9	4.5	7.1	2.6	5.3	8.4	7.0
Wife	7.5	7.2	7.9	6.4	7.0	4.9	5.1	7.4	7.2
d									

$H_0: \mu_d = 0$ $H_1: \mu_d < 0$ (Husband – wife) $\bar{d} = \underline{\hspace{2cm}}$ $s_d^2 = \underline{\hspace{2cm}}$ Test Statistic: $\underline{\hspace{2cm}}$