

(c) Chickens produce eggs.

The effect of the age of a chicken on the mass of the eggs it laid was investigated.

A statistical test can be used to see if there is a significant correlation between the age of a chicken and the mass of her eggs.

The value generated by this statistical test will always be between -1.0 to $+1.0$.

The table shows the mass of eggs collected from chickens of different ages.

Age / weeks	Rank of age	Mass of egg / g	Rank of mass of egg	D	D^2
36	1	2.27	8	-7	49
39	2	1.91			
42	3	2.18	5.5	-2.5	6.25
45	4	2.28	9	-5	25
48	5	2.12	4	1	1
51	6	2.19	7	-1	1
54	7	2.18	5.5	1.5	2.25
57	8	2.09	3	5	25
60	9	2.03	2		

(i) Calculate the value for $\sum D^2$.
Use the table to help you.

(2)

$$\sum D^2 = \dots\dots\dots$$