

Name:

Quiz 13, Attempt 1

13. Twelve pairs of twin male lambs were selected; diet plan I was given to one twin and diet plan II to the other twin in each case. The weights at eight months were as follows.

	+	+		+		+	+	+	+	+		
Diet I:	111	102	90	110	108	125	99	121	133	115	90	101
Diet II:	97	90	96	95	110	107	85	104	119	98	97	104

Determine if diet plan 1 produces different weights than diet plan 2. Use a 2-sided alternative. Find the p-value from a paired sign test (expressed in terms of an appropriate CDF). Also find the p-value from a paired signed-rank test (give the number).

$$2 P(\text{BIN}(12, \frac{1}{2}) \geq 8)$$

For the second part we use only the last 3 sets of lambs (for tractability).

115	98	$\frac{d}{17}$	$\frac{r}{3}$	$t = 3$
90	97	-7	2	
101	104	-3	1	

1	2	3	$\frac{t}{6}$
+	+	+	6
+	+	-	3
+	-	+	4
+	-	-	1
-	+	+	5
-	+	-	2
-	-	+	3
-	-	-	0

$$p\text{-value} = \min\left(1, 2 \cdot \frac{5}{8}\right) = 1$$