

Answer on Question #43724 – Math – Statistics and Probability

Use the sign test to see if there is a difference between the number of days until collection of an account receivable before and after a new collection policy. Use the 0.05 significance level.

Solution

Before: 30 28 34 35 40 42 33 38 34 45 28 27 25 41 36

After: 32 29 33 32 37 43 40 41 37 44 27 33 30 38 36

(1st - 2nd) Calculated - - + + + - - - - + + - - + 0

The number of plus and minus signs for each pair is shown along with the raw data in the table above. From the above we see that there are 8 (-)ve signs, 6 (+)ve signs and 1 zero. As per the convention we drop the pair giving rise to zero. Then $n = 15 - 1 = 14$ and $S = 6$ as the (+)ve sign is less frequent. Calculating the value of K we have:

$$K = \frac{14 - 1}{2} - (0.98)\sqrt{14} = 6.50 - 3.67 = 2.83.$$

Since $S > K$ the null hypothesis is accepted and we may conclude that there is no significant difference in the number of days between an accounts receivable before and after the introduction of a new policy.