1. X-rays of kidneys of normal children are used to measure the distance from the inside wall of the kidney to the spine, a distance easily visualized the X-ray, and are sometimes useful in diagnosing kidney disease. A study was conducted in which a sample of 24 children was taken. For each child in the sample an X-ray was taken and the distance (y, in mm) was also recorded. The data appear in the next page!
2. Plot a scatter diagram of the data
3. Write the fitted regression equation
4. Estimate the variance
5. Test the usefulness of the model by testing the hypothesis H˳: a = 0 against Hı : a ≠ 0

H˳: b = 0 against Hı: b ≠ 0

1. Calculate R²

|  |  |  |
| --- | --- | --- |
| Child | Age | Distance |
| 1 | 2 | 20 |
| 2 | 3 | 18 |
| 3 | 4 | 22 |
| 4 | 4 | 25 |
| 5 | 5 | 17 |
| 6 | 5 | 20 |
| 7 | 5 | 20 |
| 8 | 5 | 22 |
| 9 | 6 | 21 |
| 10 | 6 | 22 |
| 11 | 7 | 20 |
| 12 | 7 | 20 |
| 13 | 7 | 22 |
| 14 | 7 | 24 |
| 15 | 8 | 18 |
| 16 | 8 | 25 |
| 17 | 8 | 33 |
| 18 | 9 | 27 |
| 19 | 9 | 31 |
| 20 | 10 | 18 |
| 21 | 10 | 24 |
| 22 | 10 | 34 |
| 23 | 11 | 25 |
| 24 | 11 | 28 |