Page 266 - Question 12 (a) (ii)

Find

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| 1977 | 88 | -3 | 9 | -27 | 81 | -264 | 792 |
| 1978 | 101 | -2 | 4 | -8 | 16 | -202 | 404 |
| 1979 | 105 | -1 | 1 | -1 | 1 | -105 | 105 |
| 1980 | 91 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1981 | 113 | 1 | 1 | 1 | 1 | 113 | 113 |
| 1982 | 120 | 2 | 4 | 8 | 16 | 240 | 480 |
| 1983 | 132 | 3 | 9 | 27 | 81 | 396 | 1188 |
|  | **750** | **0** | **28** | **0** | **196** | **178** | **3082** |

Taking 1980 as origin

Taking 1977 as origin

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| 1977 | 88 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1978 | 101 | 1 | 1 | 1 | 1 | 101 | 101 |
| 1979 | 105 | 2 | 4 | 8 | 16 | 210 | 420 |
| 1980 | 91 | 3 | 9 | 27 | 81 | 273 | 819 |
| 1981 | 113 | 4 | 16 | 64 | 256 | 452 | 1808 |
| 1982 | 120 | 5 | 25 | 125 | 625 | 600 | 3000 |
| 1983 | 132 | 6 | 36 | 216 | 1296 | 792 | 4752 |
|  | **750** | **21** | **91** | **441** | **2275** | **2428** | **10900** |

For origin 1980

For origin 1977

It is possible that we can find , and for origin 1977 without solving it, using the equation of the origin .

Second degree equation from the origin 1980 is given as follows

Because 1977 is 3 units backward from 1980, so we replace with .