

§ 4. When there are several figures in the value of x , they may be arranged in a column, and each figure used separately, as in common multiplication. When only approximate values are required, "contracted multiplication" may be used.

4. Find the value of $3x^5 - 160x^4 + 344x^3 + 700x^2 - 1910x + 1200$, given $x = 51$.

	3	- 160	+ 344	+ 700	- 1910	+ 1200
1		3	- 7	- 13	37	- 23
50		150	- 350	- 650	1850	- 1150
	3	- 7	- 13	+ 37	- 23;	+ 27

∴ result is 27.

5. Given $x = 1.183$, find the value of $64x^4 - 144x + 45$ correct to three decimal places.

	64	0	0	- 144	+ 45
1		64	75.712	89.5673	- 38.0419
1		6.4	7.5712	8.9567	- 3.8042
8		5.12	6.0570	7.1654	- 3.0434
3		0.192	0.2271	0.2687	- 0.1141
	64	75.712	89.5673	- 38.0419	- 0.0036

∴ result is - 0.004.

Ex. 2.

Find the value of

- $x^4 - 11x^3 - 11x^2 - 13x + 11$, for $x = 12$.
- $x^4 + 50x^3 - 16x^2 - 16x - 61$, for $x = -17$.
- $2x^4 + 249x^3 - 125x^2 + 100$, for $x = -125$.
- $2x^3 - 473x^2 - 234x - 711$, for $x = 200$.
- $x^5 - 3x^2 - 8$, for $x = 4$.