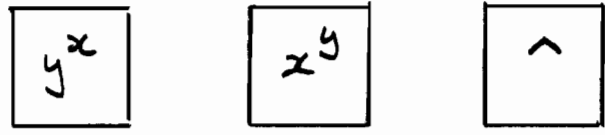


Using scientific calculators:

All scientific calculators have an x^2 button

Some scientific calculators have an x^3 button

All scientific calculators have a button to raise a number to any power. It is usually one of the following:

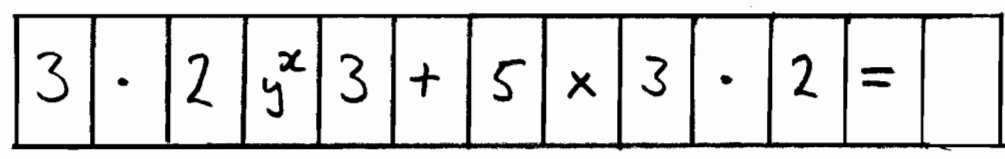


To cube a number you type in the number followed by y^x 3

Examples to show how data is entered

Ex1 $x^3 + 5x$ when $x = 3.2$

$$3.2^3 + 5 \times 3.2$$



If the calculator has an x^3 button then this can be used instead of y^x 3 The answer = 48.768

Ex 2 $x^3 - x^2$ when $x = 4.65$

$$4.65^3 - 4.65^2$$

4	·	6	5	y ^x	3	-	4	·	6	5	x ²	=
---	---	---	---	----------------	---	---	---	---	---	---	----------------	---

The answer should be 78.922125

Ex 3 $x^3 + 4x^2$ when $x = 7.8$

$$7.8^3 + 4 \times 7.8^2$$

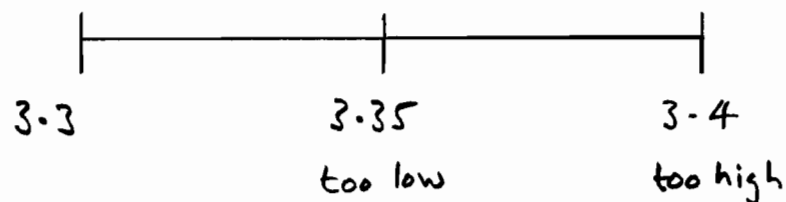
7	·	8	y ^x	3	+	4	x	7	·	8	x ²	=
---	---	---	----------------	---	---	---	---	---	---	---	----------------	---

The answer should be 717.912

Solving cubic equations

Example 1 Solve $x^3 + x^2 = 50$ correct to 1 decimal place

x	$x^3 + x^2$	
3	$3^3 + 3^2 = 36$	too low
4	$4^3 + 4^2 = 80$	too high
3.5	$3.5^3 + 3.5^2 = 55.1$	too high
3.3	$3.3^3 + 3.3^2 = 46.8$	too low
3.4	$3.4^3 + 3.4^2 = 50.9$	too high
3.35	$3.35^3 + 3.35^2 = 48.8$	too low



Answer is between 3.35 and 3.4

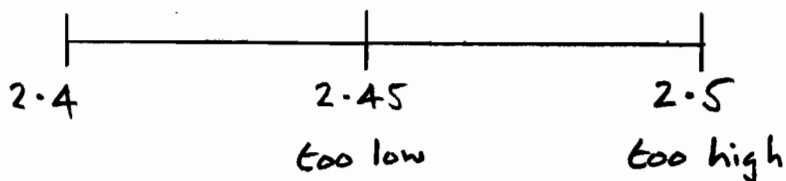
so round to $x = 3.4$

$x = 3.4$ correct to 1 decimal place

SOLVING EQUATIONS BY TRIAL AND IMPROVEMENT TRANSCRIPT

Example 2 Solve $x^3 - 2x = 10$ correct to 1 d.p.

x	$x^3 - 2x$
2	$2^3 - 2 \times 2 = 4$ too low
3	$3^3 - 2 \times 3 = 21$ too high
2.5	$2.5^3 - 2 \times 2.5 = 10.6$ too high
2.4	$2.4^3 - 2 \times 2.4 = 9.0$ too low
2.45	$2.45^3 - 2 \times 2.45 = 9.8$ too low



Answer is between 2.45 and 2.5

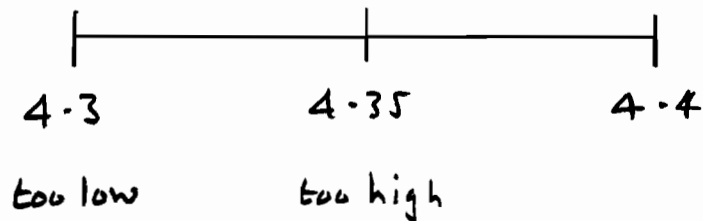
so round to $x = 2.5$

$x = 2.5$ correct to 1 decimal place

SOLVING EQUATIONS BY TRIAL AND IMPROVEMENT TRANSCRIPT

Example 3 Solve $x^3 + 6x^2 = 192$ correct to 1 d.p.

x	$x^3 + 6x^2$	
4	$4^3 + 6 \times 4^2 = 160$	too low
5	$5^3 + 6 \times 5^2 = 275$	too high
4.5	$4.5^3 + 6 \times 4.5^2 = 212.6$	too high
4.3	$4.3^3 + 6 \times 4.3^2 = 190$	too low
4.4	$4.4^3 + 6 \times 4.4^2 = 201$	too high
4.35	$4.35^3 + 6 \times 4.35^2 = 195.9$	too high



Answer is between 4.3 and 4.35

so round to $x = 4.3$

$x = 4.3$ correct to 1 decimal place

