SOLVING QUADRATICS

- Find values of x
- Can be 2, 1 or 0 answers
- Equation must equal zero

BASIC FACTORISING

Solve $x^2+7x+12=0$

- 2 brackets
- 2 numbers that:
  - add to 7
  - multiply to 12

$(x+3)(x+4)=0$

$x=-3$ or $x=-4$

Goes into the bracket to make zero.

DIFFICULT FACTORISING

Solve $2x^2+13x+20=0$

Split half → $2x^2+8x+5x+20=0$

Factorise → $2x(x+4)+5(x+4)=0$

Should have the same bracket → $(x+4)(2x+5)=0$

$2\times 20=40$

1	40
2	20
4	10
5	8

↑ Factors add to 13

$x+4=0$

$x=-4$

$2x+5=0$

$2x=-5$

$x=\frac{-5}{2}$

Quadratic Formula

Solve $4x^2+3x-7=0$

Round answers to 2 decimal places.

$a=4$

$b=3$

$c=-7$

$$\frac{-b\pm\sqrt{b^2-4ac}}{2a}$$

$$\frac{-3\pm\sqrt{3^2-(4\times 4\times -7}}{2\times 4}$$

Brackets around the negatives in the calculator

$$\frac{-3\pm\sqrt{9--112}}{8}$$

$$x=\frac{-3+\sqrt{121}}{8}=1$$

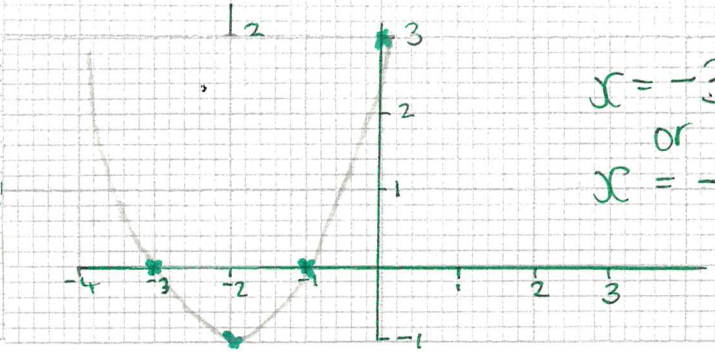
$$x=\frac{-3-\sqrt{121}}{8}=-1.75$$

GRAPHICALLY

Solve $x^2+4x+3=0$

Plot $y=x^2+4x+3$ and find where it crosses x axis

x	-3	-2	-1	0
y	0	-1	0	3



$x=-3$ or $x=-1$