

Factor x^2+6x+9
 $(x+3)^2$

$x^2-8x+16$
 $(x-4)^2$

x^2-9
 $(x+3)(x-3)$

x^2-7x-4
 No factor!

4.3b Finding Zeros

Quadratic Equation - is form of $ax^2+bx+c=0$.

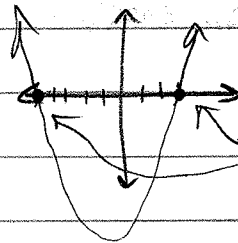
The solutions are called roots or zeros

If $A \cdot B = 0$, then $A=0$ or $B=0$

so if $(x+5) \cdot (x-3) = 0$, then $x+5=0$ or $x-3=0$

Zeros or roots are $\rightarrow x = -5$ $x = 3$

The graph looks like



graph crosses at -5 & 3

$x^2+2x-15$

$(x^2+2x+4)-15-4$

$(x+2)^2-19$

Find the roots for:

1) $x^2+6x+5=0$
 $\begin{matrix} 1 & 5 \\ -1 & -5 \end{matrix}$

$(x+1)(x+5) = 0$

so $x+1=0$ or $x+5=0$

$x = -1$ or $x = -5$

2) $q^2-11q+20 = -8$

$q^2-11q+28 = 0$

Move that
 -8 over!

$\begin{matrix} 1 & 28 \\ 2 & 14 \\ 4 & 7 \\ -1 & -28 \\ -2 & -14 \\ -4 & -7 \end{matrix}$

$-4 \cdot -7 \rightarrow -11$

$(q-4)(q-7) = 0$

so $q-4=0$ or $q-7=0$

$q = 4$ or $q = 7$

3) $x^2-28 = 8$
 $\begin{matrix} -8 & -8 \end{matrix}$

Move that $+8$!

$x^2-36 = 0$

$(x-6)(x+6) = 0$

so $x-6=0$ or $x+6=0$

$x = 6$ or $x = -6$

ps 56! 24-30, 33, 34, 38-40, 57, 59 Try