HOW TO COMPLETE THE SQUARE ON A QUADRATIC EQUATION

$$
\begin{aligned}
& (1) \quad y=a x^{2}+b x+c \\
& y=x^{2}-8 x+3 \\
& y=\left(x^{2}-8 x+16\right)+3-16 \\
& (-4)^{2} \\
& y=(x-4)^{2}-13
\end{aligned}
$$

$$
\rightarrow y=a(x-h)^{2}+k
$$

vertex $(h, k)$
ved.Str $a$

$$
\begin{aligned}
& (a+b)^{2}=a^{2}+2 a b+b^{2} \\
& (x-3)^{2}=x^{2}-6 x+9
\end{aligned}
$$

$(-3)^{2}-1$

$$
\begin{aligned}
\begin{array}{l}
(2) \\
y
\end{array} & =2 x^{2}+12 x-1 \\
& =2\left(x^{2}+6 x+9\right)-1-18 \\
y & =2(x+3)^{2}-19
\end{aligned}
$$

(3)

$$
\begin{gathered}
y=-2 x^{2}-4 x+5 \\
y=-2\left(x^{2}+2 x+1\right)+5+2 \\
y=-2(x+1)^{2}+7
\end{gathered}
$$

(4)

$$
\begin{aligned}
& y=2 x^{2}-10 x+3 \\
&=2\left(x^{2}-5 x \frac{25}{4}\right)+3-12 \frac{1}{2} \\
&\left(-\frac{5}{2}\right)^{2} \\
& y=2\left(x-\frac{125}{4}\right)=\frac{25}{2}=12 \frac{1}{2}
\end{aligned}
$$

