The effect of $a, b, c, h, k$ on the shape of a Parabola

| $y=a x^{2}+b x+c$ | Standard/General Form |
| :--- | :--- |
| $y=a(x-h)^{2}+k$ | Shifted/Vertex Form |
| $y=a\left(x-r_{1}\right)\left(x-r_{2}\right)$ | Factored Form |



Summarize how each of the following relates to/effects the Parabola: $a:$
$\qquad$ $\frac{-b}{2 a}$ :
$\qquad$
c:
h:
$\qquad$ k:
$\qquad$
$\qquad$
$r_{1} \& r_{2}:$
$\qquad$
$\qquad$
$\frac{r_{1}+r_{2}}{2}:$
$D=\sqrt{b^{2}-4 a c}:$

What is the relation between root, zero \& x-intercept?

