 Using desmos to solve inequalities

Solve the inequality $x^{2}+5x+8\leq 2$

The inequality above is in the form $f\left(x\right)\leq k$ where $f(x)$ is quadratic and $k$ is constant.

* Define $f(x)$ by entering ***f(x)=x^2+5x+8*** into the input box on the left hand side. 

The curve for $y=f(x)$ will be displayed automatically.



* Define $k$ by entering ***k=2*** into an input box below $f(x)$.



* Enter ***y=k*** into an input box below $k$ to display the line $y=k$



* Form the inequality statement $x^{2}+5x+8\leq 2$ by entering ***f(x)<=k*** as $f\left(x\right)$ and $k$ have already been defined.



The regions for $x^{2}+5x+8\leq 2$ will automatically be displayed.



Reading the values for $x$ where the boundaries of the inequalities region cross the $x$-axis gives the solution $-3\leq x\leq -2$, which coincide with the $x$-ordinates of the intercepts between the curve and the line.

**Source**: [Solving inequalities graphically](https://www.desmos.com/calculator/h2uplkjkhp) desmos activity.