

When you are asked for the nature of roots of a quadratic function, you can find them using the discriminant.

For a function in the form $ax^2 + bx + c$, the discriminant is $b^2 - 4ac$.

There are three scenarios based on the value of the discriminant.

If $b^2 - 4ac$ is greater than zero, there are two real and distinct roots.

If $b^2 - 4ac$ is equal to zero, there is one repeated real root.

And if $b^2 - 4ac$ is less than zero, there are no real roots.

Determine the nature of the roots of this function.

$f(x) = 2x^2 + 4x + 5$.

Take the coefficients $a = 2$, $b = 4$ and $c = 5$.

Substitute the values into $b^2 - 4ac$.

Which is $16 - 40$ so the discriminant is equal to negative 24.

As the discriminant is less than zero there are no real roots.

Remember whether the discriminant is more than, equal to or less than zero will determine the number and nature of roots.