The CAST diagram is used in trigonometry to remember when each of the trigonometry functions are positive in a period of 360 degrees.

All functions are positive in quadrant one, sine is positive in quadrant two, tangent in quadrant three and cosine in quadrant four.

The cast diagram helps solve trigonometric equations like four sin x plus one equals negative two.

Firstly, rearrange the equation to get sin x on its own.

To do this, subtract one from each side then divide both sides by four.

So, sin x equals negative three quarters.

Calculate the size of the angle represented by positive three quarters by doing the inverse sine function of three quarters.

This gives an acute angle of 48 point five nine degrees.

Now, use the CAST diagram to find where sin x is negative.

This is quadrants three and four.

The two solutions can be found by substituting x equals 48 point five nine degrees into the equations for quadrants three and four.

So, the solutions are 228 point five nine degrees and 311 point four one degrees.

Check the solutions in the equation to confirm they give the answer negative two.