Find the interval on which $g(x) = \left[\!\left[\frac{1}{2}(\cos x + 1) \right]\!\right]$ is continuous, where $[\![k]\!]$ is the greatest integer less than or equal to k.

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Find all the asymptotes of $f(x) = \dfrac{\left|x^3 - x^2 - x + 1\right|}{4 - 3x - x^2}$ if any. Explain in detail.

With My Best Wishes