DNA melting temperature

A 25-mer primer of DNA has hybridization enthalpy and entropy given below. Calculate the melting temperature of the primer.

$$\Delta_{hyb}H^o = -92\ kJ/mol$$

$$\Delta_{hyb}S^o = -276\ J/molK$$

DNA melting temperature

The melting temperature at which hybridization

$$DNA + Target \rightarrow DNA - Target$$

is no longer spontaneous occurs when

$$\Delta_{hyb} G^o = 0.$$

This temperature is:

$$T = \frac{\Delta_{hyb} H^o}{\Delta_{hyb} S^o}$$

$$T = \frac{-92{,}000\ J/mol}{-276\ J/molK} = 333\ K$$