Magnesium nitrate decomposes when heated. $2Mg(NO_3)_2(s) \rightarrow 2MgO(s) + 4NO_2(g) + O_2(g)$

substance	$Mg(NO_3)_2(s)$	$MgO(s)$	$NO_2(g)$	$O_2(g)$
$\Delta_f H^{\ominus}$ (kJ mol^{-1})	−790	−602	+33.9	
$S^{\ominus}$ (J mol^{-1} K^{-1})	+65.7	+27.0	+240	+205

a Calculate the enthalpy change for this reaction.

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b Calculate the entropy change for this reaction.

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c Is this reaction feasible at 298K? Explain your answer.

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d Calculate the temperature at which the reaction becomes feasible.

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e Explain why the feasibility changes with temperature.

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