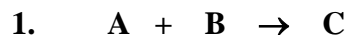


### Thermochemistry: Gibbs Crossover Temperatures

Consider the following situations.

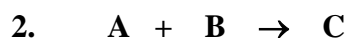


$$\Delta H^\circ = -9000$$

$$\Delta S^\circ = -50$$

Spontaneous at 300 K? \_\_\_\_\_

Is there a temp where spontaneity changes?

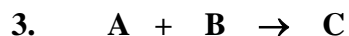


$$\Delta H^\circ = -7000$$

$$\Delta S^\circ = +80$$

Spontaneous at 300 K? \_\_\_\_\_

Is there a temp where spontaneity changes?

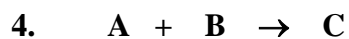


$$\Delta H^\circ = +9000$$

$$\Delta S^\circ = +20$$

Spontaneous at 300 K? \_\_\_\_\_

Is there a temp where spontaneity changes?

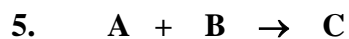


$$\Delta H^\circ = +5000$$

$$\Delta S^\circ = -120$$

Spontaneous at 300 K? \_\_\_\_\_

Is there a temp where spontaneity changes?

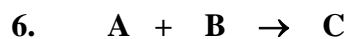


$$\Delta H^\circ = +23800$$

$$\Delta S^\circ = +50$$

Spontaneous at 300 K? \_\_\_\_\_

Is there a temp where spontaneity changes?

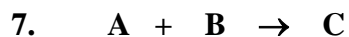


$$\Delta H^\circ = -12000$$

$$\Delta S^\circ = +45$$

Spontaneous at 300 K? \_\_\_\_\_

Is there a temp where spontaneity changes?

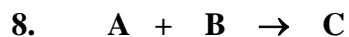


$$\Delta H^\circ = -8500$$

$$\Delta S^\circ = -20$$

Spontaneous at 300 K? \_\_\_\_\_

Is there a temp where spontaneity changes?



$$\Delta H^\circ = +95000$$

$$\Delta S^\circ = +110$$

Spontaneous at 300 K? \_\_\_\_\_

Is there a temp where spontaneity changes?