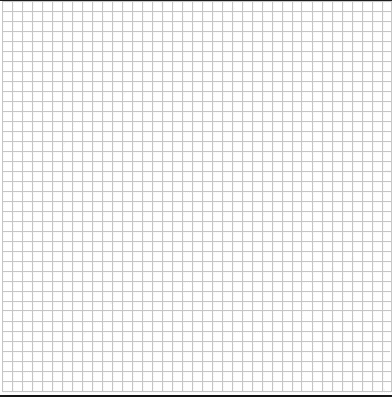
Unit 2 Review:

Consider the following closed system

P4 (s) + 10Cl2(g) 4P 4PCl5 (g) ∆H = -1528 kJ

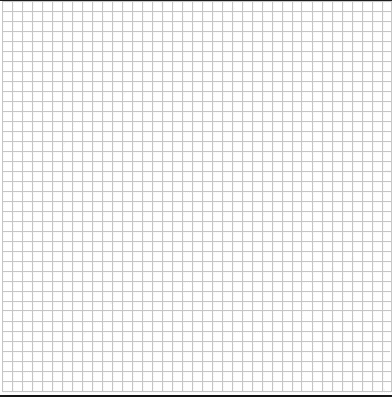
Draw the stress graphs for the following instances.

1. Temperature is suddenly decreased

P4

Cl2

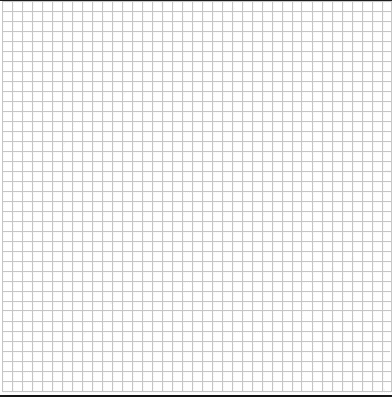
PCl5

1. An amount of PCl5 is suddenly added

P4

Cl2

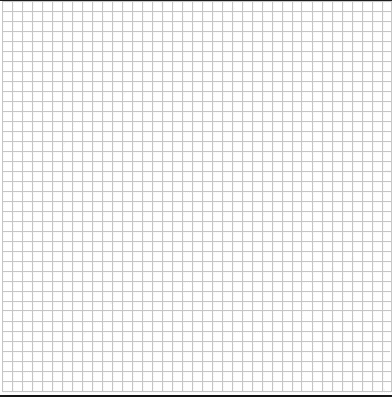
PCl5

1. An increase in volume

P4

Cl2

PCl5

1. A catalyst is added

P4

Cl2

PCl5

1. A chemist is studying the Haber process of Ammonia production.

N2 (g) + 3 H2 (g) 2NH3 (g)

If 1.5 moles of Ammonia are placed in a 2.0 L flask and allowed to come to equilibrium at 27 ᵒc, what will the concentration of Nitrogen and Hydrogen be? (Keq at 27 ᵒc is 2.69 x 108 )

\*\*\*\* assume that x <<< [NH3] and can be ignored to avoid the quadratic\*\*\*\*

1. Consider the following closed system at a given temperature

CH4 (g) + 2H2S (g) CS2 (g) + 4H2 (g)

1. 3.0 moles of CH4, 8.0 moles of H2S, 2.0 moles of CS2 and 2.5 moles of H2 are placed in a 0.500 L flask. If Keq at this temperature is 1.21, what direction must this equilibrium shift to reach equilibrium?
2. In a separate experiment, 3.5 moles of CH4, 1.5 moles of CS2 and 2.0 moles of H2 are placed in the same size flask at the same temperature, what is the equilibrium concentration of H2S?