Solution Set

Notes:
The periclase-in isograd could either be drawn parallel to the intrusion (implying uniform fluid and temperature conditions) or as three small periclase zones, as shown. The quartz-out isograd refers to the optional question #2.
Zone A → Zone B

\[1H_2O + 5D0 + 8Qt = 1Tr + 3Cc + 7CO_2\]

Zone B → Zone C

\[1Tr + 11D0 = 8Fo + 13Cc + 1H_2O + 9CO_2\]

Zone C → Zone D

\[1D0 = 1Pe + 1Cc + 1CO_2\]

**Bulk Composition**

Yellow marks the overlap between the four 3-phase field. Note that this analysis assumes closed-system behavior (no metasomatism).
Notes:
I use this exercise to point out that while some assemblages can be very restrictive with respect to metamorphic conditions, other assemblages give poor constraints. The Do+Qtz+Tr+Cc assemblage refers to the optional question #2.