① If $x \in cl(A) \setminus A$ then show $x \in bd(A)$

Is the converse true?

② Is $bd(A) = bd(intA)$?

③ $B \subset \mathbb{R}^n$ be any set

Define $C = \{x \in \mathbb{R}^n \mid d(x,y) < 1 \text{ for some } y \in B\}$

Show that C is open

(Hint: show $C = \bigcup_{y \in B} D(y,1)$

④ If $A \subset B$, is $int(A) \subset int(B)$?

⑤ Is $int(A) \cap int(B) = int(A \cap B)$?

⑥ True or False?

(a) $int(cl(A)) = int(A)$

(b) $cl(A) \cap A = A$

(c) $cl(int(A)) = A$

(d) $bd(cl(A)) = bd(A)$

(e) If A open, $bd(A) \subset \mathbb{R}^n \setminus A$

⑦ Prove $(A \subseteq \mathbb{R}^n)$

(a) $int(intA) = int(A)$

(b) $int(A \cup B) \supseteq int(A) \cup int(B)$

(c) $int(A \cap B) = int(A) \cap int(B)$

⑧ Show that $cl(A) = A \cup bd(A)$ and $int(A) = A \setminus bd(A)$