A few last identities

De Morgan's Laws

- $\neg(P \wedge Q) \iff \neg P \vee \neg Q$;
- $\neg(P \vee Q) \iff \neg P \wedge \neg Q$.

We also have

- **commutativity:**
  - $P \vee Q \iff Q \vee P$;
  - $P \wedge Q \iff Q \wedge P$;
- **associativity:**
  - $(P \vee Q) \vee R \iff P \vee (Q \vee R)$;
  - $(P \wedge Q) \wedge R \iff P \wedge (Q \wedge R)$;
- **distributivity:**
  - $(P \wedge Q) \vee R \iff (P \vee R) \wedge (Q \vee R)$;
  - $(P \vee Q) \wedge R \iff (P \wedge R) \vee (Q \wedge R)$.