Open mapping theorem

1. Remind: definition of continuous mapping.

2. Definition: Open mapping.

3. $T: X \to Y$ linear. T - open $\Leftrightarrow \exists \delta : \delta B_Y \subset T B_X$.

4. Corollary: $T \in \mathcal{L}(X, Y)$.

- T open $\Rightarrow$ T - onto
- T is one-to-one and open $\Rightarrow$ T - invertible

5. Definition Almost open operator.

6. $T \in \mathcal{L}(X, Y)$, T - almost open $\Rightarrow$ T - open.

7. Open mapping thm: $T \in \mathcal{L}(X, Y)$, T - onto $\Rightarrow$ T - open.

8. Banach thm on inverse operator

9. Corollary: Quotient space.

10. Corollary Equivalent norms.

11. Definition Graph of a mapping.

12. Closed graph theorem.