



OKAN ÜNİVERSİTESİ  
MÜHENDİSLİK-MİMARLIK FAKÜLTESİ  
MÜHENDİSLİK TEMEL BİLİMLERİ BÖLÜMÜ

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2016–17

MAT461 Fonksiyonel Analiz I – Ödev 1

N. Course

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SON TESLİM TARİHİ: Çarşamba 12 Ekim 2016 saat 10:00'e kadar.

**Egzersiz 1 (Metric spaces).**

- (a) [24p] Show the *inverse triangle inequality*

$$|d(x, y) - d(z, y)| \leq d(x, z).$$

- (b) [24p] Show the *quadrangle inequality*,

$$|d(x, y) - d(x', y')| \leq d(x, x') + d(y, y').$$

- (c) [24p] Let  $U \subseteq V$  be subsets of a metric space  $X$ . Show that if  $U$  is dense in  $V$  and  $V$  is dense in  $X$ , then  $U$  is dense in  $X$ .

**Egzersiz 2 (Topological spaces).**

- (a) [14p] Show that  $X \setminus \overline{A} = (X \setminus A)^\circ$ .

- (b) [14p] Show that  $X \setminus A^\circ = \overline{(X \setminus A)}$ .