DEFINITIONS

- a function
- a vector space
- a subspace of a vector space
- an inner product on a vector space
- a norm on a vector space
- the Cauchy-Schwarz inequality in an inner product space
- the angle between two vectors in $\mathbb{R}^2$
- a line in $\mathbb{R}^2$
- an open half spaces defined by a line in $\mathbb{R}^2$
- a closed half spaces defined by a line in $\mathbb{R}^2$
- metric on a non-empty set
- open set in a metric space
- closed set set in a metric space
- bounded set set in a metric space
- compact set set in a metric space
- interior point of a set set in a metric space
- boundary point of a set set in a metric space
- connected metric space
- continuous function from a metric space into itself
- subspace of a metric space
- convergent infinite sequence in a metric space
- Cauchy sequence in a metric space
• **accumulation point** of a sequence in a metric space
• **limit point** of a subset of a metric space
• **connected** metric space (set)
  • example of a closed and bounded subset of a metric space that is not a compact subset

Worksheets
• #9.2.1
• #10.2.3
• #10.3.1
• #10.3.6
• #10.4.1
• #10.5.3
• #10.6.2
• #10.6.3

Homeworks
• #20
• #23
• #24
• #27

T/F Chpts. #8,9,10