Λύσεις

1.

$$
\lim_{x\to \pm\infty}\left(2 + \left|\frac{\cos x}{x}\right| \right)=2
$$

2.

Αν

$$
\beta_n = \sum_{k=1}^n \frac{1}{k} - \ln n
$$

τότε $\beta_n \to \gamma\simeq 0.5772$, $n \to \infty$.

3.

$$
\inf_{n\in\mathbb{N}} \left\{\frac{1}{1 + \sqrt{n}} \right\} = 0
$$

4.

$$
\forall x,y \in \mathbb{R} \quad |x|+|y| \geq |x + y|
$$

5.

Αν $A \subset \Omega$, τότε
$A^c = \Omega\setminus A = \{x : x\in \Omega, x\notin A\}$

6.

$$
\bigcup_{n=1}^\infty \left(0,\frac{1}{n}\right) = (0,1) , \qquad
\bigcap_{n=1}^\infty \left(0,\frac{1}{n}\right) = \varnothing
$$

7.

$A \times B = \{(a,b) : a\in A ,b\in B\}$,

8.

Αν $\boldsymbol{u}$, $\boldsymbol{v} \in \mathbb{R}^{2}=\mathbb{R}\times \mathbb{R}$, τότε

$$
\boldsymbol{u}\perp\boldsymbol{v} \Leftrightarrow
\langle \boldsymbol{u}, \boldsymbol{v}\rangle = 0 .
$$