Sine/cosine/tangent graphs

6 questions | 18 marks

Equivalent correct methods earn the corresponding marks.

1. List zeros of sinx on $0 \leq x \leq 2\pi$. [3 marks]

Sine is zero at points on the horizontal axis.

Answer: $0, \pi, 2\pi$

2. Where does cosx attain-1 on $0 \leq x \leq 2\pi$? [3 marks]

The leftmost unit-circle point has horizontal coordinate-1.

Answer: $x = \pi$

3. State the range and period of sinx. [3 marks]

Use the vertical extremes and the repeating cycle.

Answer: Range $[-1, 1]$; period 2π.

4. Give tangent asymptotes between$-\pi$ andπ. [3 marks]

These are the odd half-pi values in the interval.

Answer: $x = -\pi/2, \pi/2$

5. Find all x with cosx=0 on $-\pi \leq x \leq \pi$. [3 marks]

Cosine vanishes at the vertical-axis points.

Answer: $x = \pm\pi/2$

6. Compare sin(x+2π) with sinx, and tan(x+π) with tanx. [3 marks]

The added angles are whole periods of the corresponding functions.

Answer: They are equal respectively.