

Unit 6 Test

Amplitude, Period, Phase Shift & Vertical Shift

Name: _____ Date: _____ Score: ____ / 10

INSTRUCTIONS

For multiple-choice questions, circle the letter of the correct answer. For short-answer and problem-solving questions, show your complete work in the space provided. No calculator unless your teacher says otherwise.

1 What is the amplitude of $y = 3\sin(x)$?

Multiple Choice

☐ A 3☐ B 1☐ C 6☐ D $1/3$ **2** What is the period of $y = \sin(2x)$?

Multiple Choice

☐ A π ☐ B 2π ☐ C 4π ☐ D $\pi/2$ **3** Short Answer — Find the period of $y = \cos(x/3)$.

Short Answer

4 What is the phase shift of $y = \sin(x - \pi/4)$?

Multiple Choice

☐ A Right $\pi/4$ ☐ B Left $\pi/4$ ☐ C Right $\pi/2$ ☐ D No phase shift**5** What is the vertical shift of $y = \cos(x) + 5$?

Multiple Choice

☐ A Up 5☐ B Down 5☐ C Up 1☐ D No vertical shift**6** Short Answer — Write an equation for a sine function with amplitude 4, period π , no phase shift, and no vertical shift.

Short Answer

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7 What is the range of $y = 2\sin(x) - 3$?

Multiple Choice

A $[-5, -1]$ **B** $[-1, 5]$ **C** $[-2, 2]$ **D** $[-3, 3]$ **8** Which of the following functions has period π ?

Multiple Choice

A $y = \sin(2x)$ **B** $y = \sin(x)$ **C** $y = \cos(x/2)$ **D** $y = \tan(x/2)$ **9** Problem Solving — For $y = -3\cos(2x - \pi) + 1$, identify the amplitude, period, phase shift, and vertical shift.

Problem Solving

10Problem Solving — Describe how the graph of $y = 2\sin(x + \pi/2) - 1$ is transformed from the graph of $y = \sin(x)$. Include amplitude, period, phase shift, and vertical shift.

Problem Solving