

Group: _____ Present: _____

1. Predict the graph of $y = -2 \sin x$ _____

Graph $Y_1 = \sin(x)$, $Y_2 = -2 \sin(x)$ for $x \in [-2\pi, 2\pi]$.

Conclusion: $f(x) = a \sin x$ and $g(x) = a \cos x$ (where a is a constant) have
am _____ equal to _____

What is the transformation? _____

2. Predict the graphs of $y = \cos x + 1$ and $y = -2 \cos x + 1$ _____

Graph $Y_1 = \cos(x)$, $Y_2 = \cos(x) + 1$ and $Y_3 = -2 \cos(x) + 1$ for $x \in [-2\pi, 2\pi]$.

Conclusion: $f(x) = a \sin x + d$ and $g(x) = a \cos x + d$ (where a and d are constants)
oscillate about average value _____

What is the transformation? _____

3. Graph $Y_1 = \sin(x)$, $Y_2 = \sin(2x)$ for $x \in [-2\pi, 2\pi]$.

What is the transformation? _____

$y = \sin(2x)$ has p _____ = _____ = $\frac{2\pi}{2}$

Predict the graph of $y = 4 \sin(3x)$

It has am _____ equal to _____ and p _____ = _____

Conclusion: $f(x) = a \sin(bx)$ and $g(x) = a \cos(bx)$ (where a, b are constants) have
amplitude equal to _____ and period equal to _____

4. Predict the graph of $y = \sin(x - \frac{\pi}{2})$ _____

Graph $Y_1 = \sin(x)$, $Y_2 = \sin(x - \frac{\pi}{2})$ for $x \in [-2\pi, 2\pi]$.

$\frac{\pi}{2}$ is called the p _____ shift.

What is the transformation? _____

Predict the graph of $y = \cos(2x - \frac{\pi}{2})$ _____

Hint: write $\cos(2x - \frac{\pi}{2})$ as $\cos(2(x - \frac{\pi}{4}))$

period = _____; phase shift = _____

Conclusion: $f(x) = a \sin(bx + c)$ and $g(x) = a \cos(bx + c)$ (where a, b, c are constants)
have

p _____ shift = _____.

5. Predict the graph of $y = -2\sin(3x + \pi) - 1$

Amplitude = _____; Period = _____;

Phase shift = _____; Vertical shift = _____;

Graph on the interval $[-2\pi, 2\pi]$ to check!