Precalculus Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

***Notes (4.6) --- Graphing Sinusoids***

$y=a∙\sin(\left(b\left(x-h\right)\right)+k) $ or $ y=a∙\cos(\left(b\left(x-h\right)\right)+k) $

**KEY TERMS:**

|  |  |
| --- | --- |
| amplitude |  |
| period |  |
| frequency |  |
| midline |  |
| phase shift |  |

**Ex1)** Find the amplitude of each of the following sinusoids & then use the language of transformations to describe how the graphs of b and c are related to a.

 **a)**  *f* (*x*) = cos *x* **b)**  *y* = ½cos *x* **c)** *y* = –3cos *x*

 amp = \_\_\_\_\_ amp = \_\_\_\_\_ amp = \_\_\_\_\_

**Ex2)** Find the period of each of the following sinusoids & then use the language of transformations to describe how the graphs of b and c are related to a.

 **a)**  *f* (*x*) = sin *x* **b)**  *y* = 3sin (–2*x*) **c)** *y* = –2sin

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**Ex3)** Find the frequency of the function *f* (*x*) = 4 sin and interpret its meaning graphically. Then sketch the graph in the window [–2, 2] by [–4, 4]

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**Ex4) a)**  Write the cosine function as a phase shift of the sine function. 🡪 cos (*x*) = \_\_\_\_\_\_\_\_\_\_\_\_\_\_

 **b)** Write the sine function as a phase shift of the cosine function. 🡪 sin (*x*) = \_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Ex5)**  Construct a sinusoid with a period of  , amplitude 6, passing through the point (2, 0)

*f* (*x*) = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**Ex6)**  Construct a sinusoid that rises from a minimum value at (0, 5) to a maximum value of (32, 25)

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