**Advanced Functions and Modeling Unit 9: Phase Shifts**



***a* = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ *a* = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**



***b* = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ *b* = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

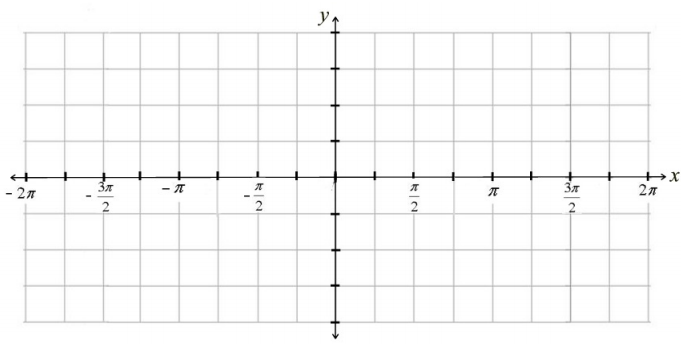
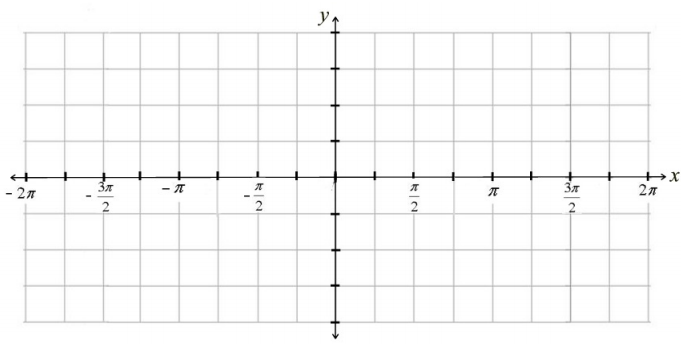


***c* = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ *c* = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

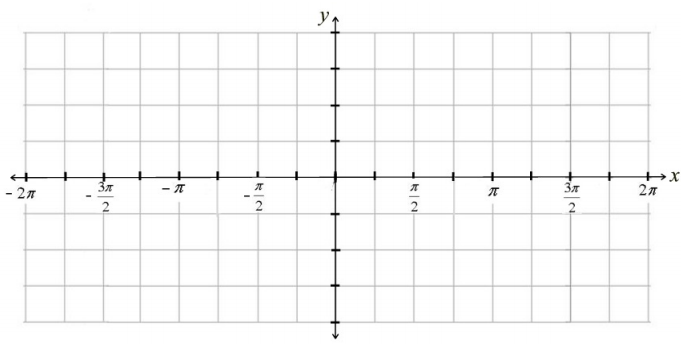


***d* = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ *d* = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**



**Parent Graph Parent Graph**



**Example 1:**



Amplitude \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Period \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



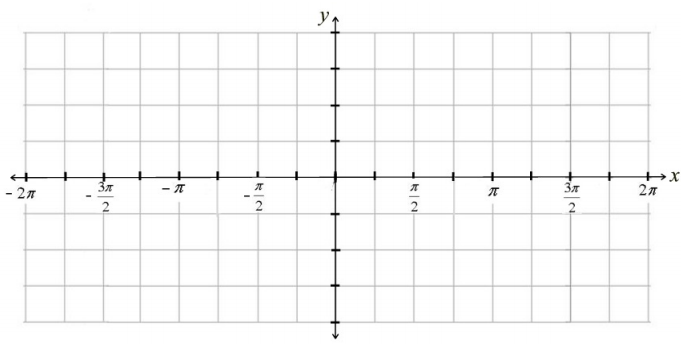
Frequency \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



Phase Shift \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



Vertical Shift \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Example 2:**



**Factored Form**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**



Amplitude \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



Period \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



Frequency \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

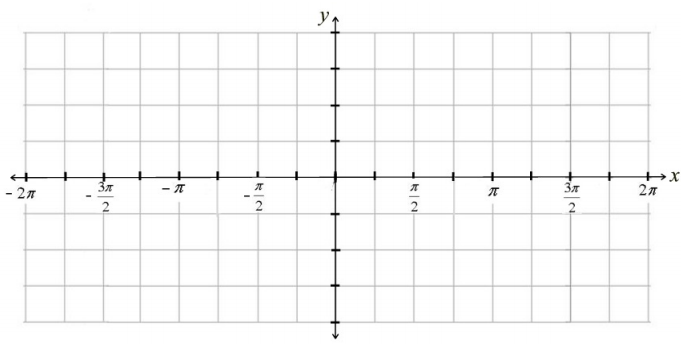


Phase Shift \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



Vertical Shift \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



**Example 3:**

**Factored Form**



**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**



Amplitude \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



Period \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

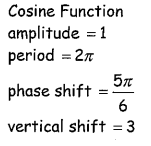
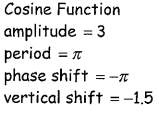
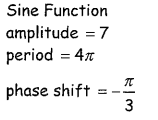


Frequency \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



Phase Shift \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Can you write a function that meets the given conditions?**

4. 5. 6.

