**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.