

# Lab FW 5.1A

## Using Formulas



Name \_\_\_\_\_

Date \_\_\_\_\_ Period \_\_\_\_\_

**VORPLES** and **NORPLES** have the following characteristics: a boogie (b), a woogie (w) and an uoogie (u).

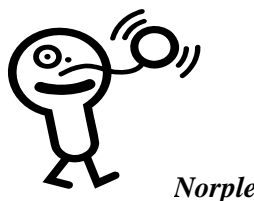
To calculate the **PLOMP** of a **VORPLE**, you need to use the following formula:

$$\text{Plomp}_{(\text{Vorple})} = u + 2(b - w)$$



To calculate the **PLOMP** of a **NORPLE**, you need to use a different formula:

$$\text{Plomp}_{(\text{Norple})} = \frac{1}{2} w(b + u)$$



Remember, when you make a calculation using a formula, you should **SHOW** as many **STEPS** as possible as you follow the mathematical **Order of Operations (PEMDAS)**. Note that the **ENTIRE STEP** should be re-written **EVERY TIME** as you progress through the calculation.

- 1) A **VORPLE** has an boogie (b) of 9, a woogie (w) of 3 and an uoogie (u) of 4;



Steps to calculate the **PLOMP** of a **VORPLE**:

- |                    |                                         |
|--------------------|-----------------------------------------|
| $P = u + 2(b - w)$ | (Write the generic formula)             |
| $P = 4 + 2(9 - 3)$ | (Substitute the values for b, w, and u) |
| $P = 4 + 2(6)$     | (Parentheses first)                     |
| $P = 4 + 12$       | (Multiplication before addition)        |
| $P = 4 + 12$       | (Last step: addition)                   |
| $P = 16$           |                                         |

- 2) A **NORPLE** has a boogie (b) of 3, a woogie (w) of 6 and an uoogie (u) of 8;



Steps to calculate the **PLOMP** of a **NORPLE**:

- |                              |                                        |
|------------------------------|----------------------------------------|
|                              | (Write the generic formula)            |
| $P = \frac{1}{2} w(b + u)$   | (Substitute the values for b, w and u) |
| $P = \frac{1}{2} (6)(3 + 8)$ | (Parentheses first)                    |
| $P = \frac{1}{2} (6)(11)$    | (Multiply left to right)               |
| $P = 3(11)$                  | (Last step: Multiplication)            |
| $P = 33$                     |                                        |

**USING FORMULAS: SHOW ALL STEPS and NEATLY** calculate the **PLOMPs** of the following **VORPLE** and **NORPLE**:

$$\text{Plomp}_{(\text{Vorple})} = u + 2(b - w)$$

$$\text{Plomp}_{(\text{Norple})} = \frac{1}{2} w(b + u)$$

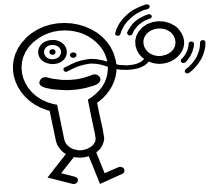
*Steps for using a formula:*

- Write the generic formula
- Substitute the values for all of the variables
- Perform the arithmetic using the order of operations (PEMDAS)

3) A **VORPLE** has a  $b = 13$ ,  $w = 5$  and a  $u = 8$ ; Calculate the **PLOMP**.



4) A **NORPLE** has a  $b = 2$ ,  $w = 6$  and a  $u = 13$ ; Calculate the **PLOMP**.



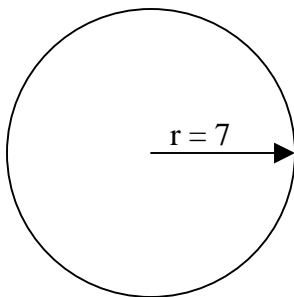
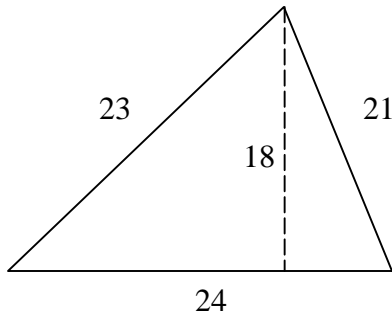
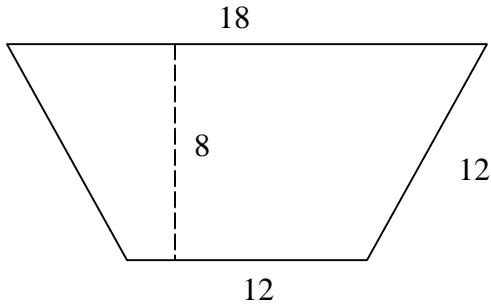
**Lab FW 5.1A**  
**Using Formulas**  
**Follow-up Exercises**

Name \_\_\_\_\_

Date \_\_\_\_\_ Period \_\_\_\_\_

You may use a calculator and the Mathematics Reference Sheet for these problems.  
**SHOW YOUR WORK STEP-BY-STEP!!** (Note: Drawings are not to scale)

Find the area: (all measurements in centimeters)



Use 3.14 for pi

Find the area: (all measurements in centimeters)

