## Fixed \& Variable Expenses - NOTES

Name:
Date:

What expenses are involved in the manufacturing process?
There are two kinds of expenses in any kind of business.
$\bullet$
$\qquad$
$\qquad$

- Examples: $\qquad$
$\qquad$
$\qquad$
- $\qquad$
$\qquad$
$\qquad$
- Examples: $\qquad$
$\qquad$
$\qquad$

Total Expenses

- The total expenses is $\qquad$
$\qquad$
- Expense equation:


## Unit 4 - Modeling a Business

Revenue

- The revenue is $\qquad$
- Revenue equation:

Once you have your revenue amount, you must then subtract the expenses from it to see how much you're left with.

| If | If | If |
| :---: | :---: | :---: |
| Revenue - Expenses $=$ <br> Positive Number | Revenue - Expenses $=$ <br> Negative Number | Revenue - Expenses $=0$ |
|  |  |  |

## Example 1:

The art students have researched all of their potential expenses for their assigned projects. The fixed expenses are $\$ 17,600$. The labor and materials required for each item produced costs $\$ 7.53$. Represent the total expenses as a function of the quantity produced, $q$.

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## Example 2:

Raymond Ski Supply manufactures hand warmers for skiers. Their expense function is $E=1.18 q+12,000$. Find the average cost of producing one pair of hand warmers if 50,000 hand warmers are produced.
a) Find the cost of producing 50,000 pairs of hand warmers if 50,000 hand warmers.
b) Find the average cost of producing one pair of hand warmers.

## Example 3:

Wally's Widget World created a monthly expense equation, $E=1.10 q+4,200$. Wally's Widget World plans to sell its widgets to retailers at a wholesale price of $\$ 2.50$ each.
a) What is its revenue function?
b) How many widgets must be sold to reach the breakeven point?

* You can also solve this by graphing both equations and seeing where they intersect.

Use desmos or a graphing calculator to graph each equation and see what their intersection point is.


