**Working the Problem**

Breaking Even: System of linear equations:

Determining the Break-even point

 (1) Total expenses per month (*y*1) can be expressed by the equation

*y*1 = 4*x* + 900

 where *x* represents the number of hanging baskets purchased.

 (2) Selling the hanging baskets (*y*2) can be expressed by the equation

*y*2 = 16*x*

 (3) Solve for *x* when *y1* = *y*2

 4*x* + 900 = 16*x*

900 = 12*x*

 75 = *x*

**Using the calculator**

Graph the equations *y*1 and *y*2



Set WINDOW



GRAPH



TRACE {to intersection}



If you are unable to determine the intersection you can change the window by

ZOOM ∨ 8  Z Integer ENTER ENTER



TRACE to intersection

 

The intersection can also be calculated using

2nd TRACE ∨ 5: intersect

The intersection can also be found on a table by using

2nd GRAPH {by scrolling up or down until *y*1= *y*2}



What information can the business owner learn from this table when *x* = 100?

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**Elaborate** / Activity/Application/ Student Engagement /Laboratory

How can this problem be applied in an agricultural setting?

How many baskets do I need to sell to reach a target goal?

What can I do to alter my expenses?

What can I do to improve my profit?

**Evaluation** / Summary