Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

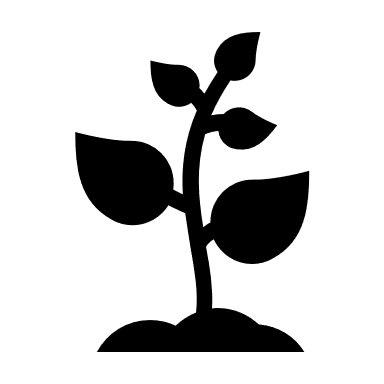
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**Warm Up 3.1 SHOW YOUR WORK!!!**

Solve the following problems by hand, use a graphing calculator to check.

1. Eliza wants to keep her curious puppies away from her garden. Below is an overhead picture of her garden, which is pushed up against her house. She is using three rectangular sides of fencing to enclose the area and keep her puppies out. All sides are measured in feet.

house



a. Find a function *A(x)* to express the area of the rectangle as a function of *x* the width.

x

x

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

b. What is the maximum area that can be enclosed? Include units.

40 - 2x

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

c. Find the width that will maximize the area. Include units. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

d. Find the length that will maximize the area. Include units. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2. A quadratic function is given.

1. Find the vertex without graphing.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Determine whether the vertex is a maximum or minimum without graphing. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

c. Find the zeros of the function. d. Find the y intercept.

e. Find the Domain and Range.