

**Unit 6 Review (A.CED.A – quadratic)**

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

Period: \_\_\_\_\_. #: \_\_\_\_\_

*Approaching*

**1)** An object is catapulted off of a platform at an initial velocity of 100 feet per second. The platform is 20 feet high. Write a function for the height of the ball,  $h(t)$ , after  $t$  seconds.

**2)** Use the given information to write a quadratic function,  $f(x)$ , in factored form.

**a)** The parabola opens downward and the x-intercepts are  $(-7, 0)$  and  $(3, 0)$ .

**b)** The parabola opens upward and the x-intercepts are  $(-6, 0)$  and  $(8, 0)$ .

*Meeting*

**3)** Use the given information to write a possible function,  $f(x)$ , for the quadratic function:  
The vertex is  $(5, 3)$  and the parabola opens downward.

**4a)** Maya is fencing in three sides of a garden, and has 200 feet of fencing to work with. Write the function  $A(w)$  to represent the area of the garden based on the width ( $w$ ).

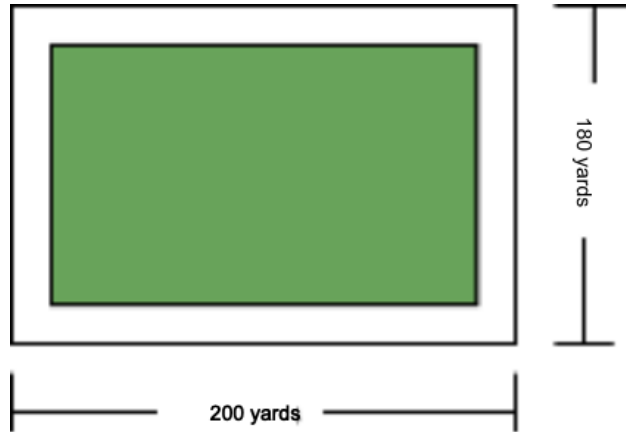
**4b)** Olivier is fencing in all four sides of his garden, and has 260 feet of fencing to work with. Write the function  $A(w)$  to represent the area of the garden based on the width ( $w$ ).

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*Meeting*

5) A rectangular lot of land measures 200 yards long by 180 yards wide. It is to be developed into a neighborhood park surrounded by a sidewalk of uniform width,  $x$ .

Write the function  $A(x)$  to represent the area of the park (the shaded part in the diagram) as a function of the sidewalk width,  $x$ .



*Exemplary*

6) A parabola has a general form of

$$f(x) = -x^2 - 8x + 48.$$

The parabola has an x-intercept of  $(4,0)$ , and an axis of symmetry of  $x = -4$ .

a) Find the other x-intercept and write the quadratic function  $f(x)$  in factored form.

b) Find the vertex and write the quadratic function  $f(x)$  in vertex form.