

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.

$$h(t) = -16t^2 + 100t + 20$$

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).

$$f(x) = -4(x+7)(x-3)$$

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

$$f(x) = 5(x+6)(x-8)$$

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.

$$f(x) = -2(x-5)^2 + 3$$

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).

$$A(w) = w(200 - 2w)$$

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).

$$A(w) = w(130 - w)$$

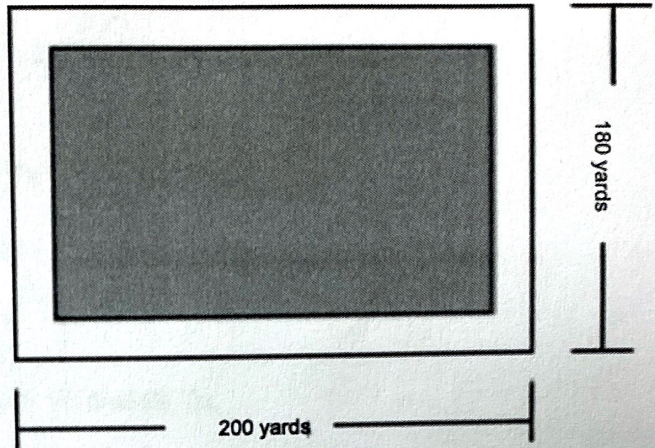
$$\frac{260 - 2w}{2}$$

Unit 6 Review (A.CED.A – quadratic), page 2

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 .



$$A(x) = (200 - 2x)(180 - 2x)$$

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.

$$f(x) = -(x - 4)(x + 12)$$

$(12, 0)$

-12 -4 4

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

$$f(x) = -(x + 4)^2 + 64$$

$(-4, 64)$

$$-(-4)^2 - f(-4) + 48 = 64$$