

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).



$$w + w + L = 200$$

$$L = 200 - w - w$$

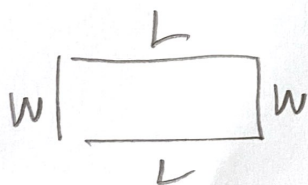
$$L = 200 - 2w$$

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

Area = width (length)



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).



$$w + w + L + L = 260$$

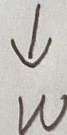
$$L + L = 260 - w - w$$

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

$$L = 130 - w$$

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

Area = width (length)

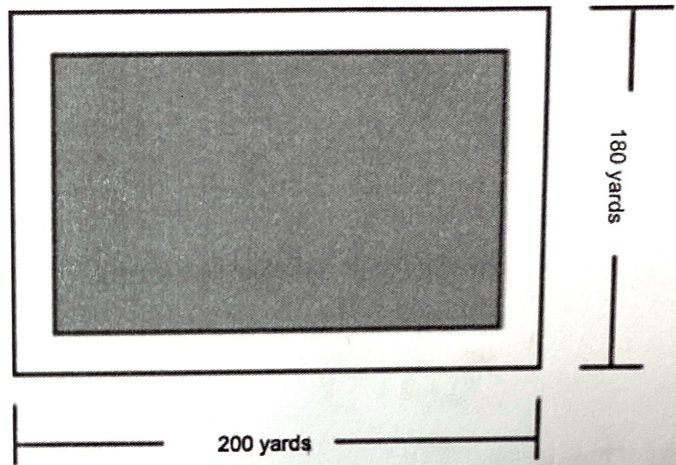


Unit 6 Review (A.CED.A – quadratic), page 2

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 .

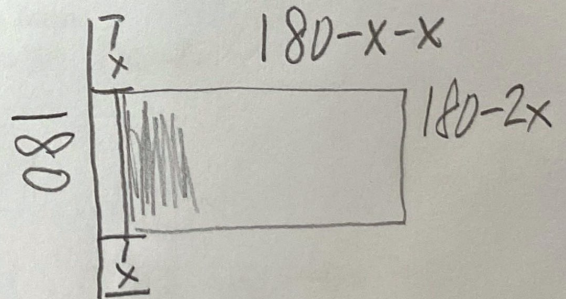


Area = width (Length)

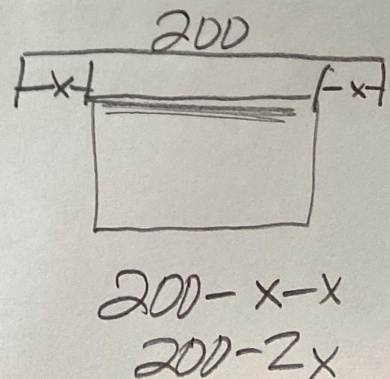
$$A(x) = (180 - 2x)(200 - 2x)$$

\uparrow \uparrow
 W L

width
of
shaded
□



length
of
shaded
□



Exemplary

6) A parabola has a general form of

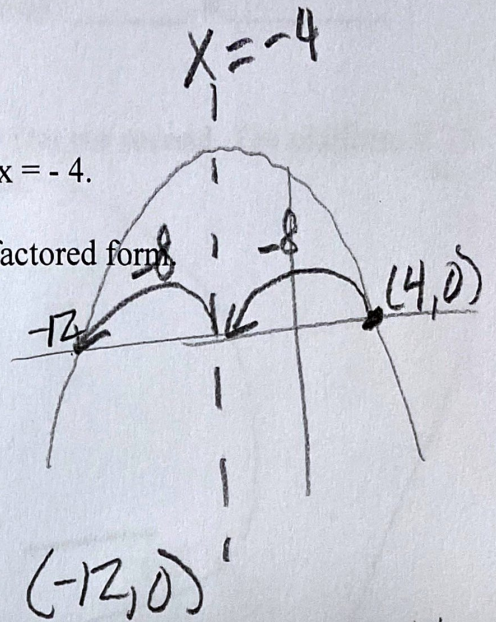
$$f(x) = -x^2 - 8x + 48.$$

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.

$(-12, 0)$

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



↑ must write ordered pair

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

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

← must have

$(-4, 64)$ ← must write ordered pair

The vertex is on the axis of symmetry, so $x = -4$

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

$$= -(-4)^2 - 8(-4) + 48$$
$$= 64$$

must be in $()$

$()$ replace x
 (-4) since $x = -4$