

Key

Unit 6 General Review

For problems 1 - 4, a builder is making a rectangular garden. Write a quadratic function, $A(w)$, that represents each area as a function of the width, w . If an area is to be enclosed on three sides, one length does not have fencing.

1) Enclosed on three sides; 420 feet of fencing.

$$A(w) = w(420 - 2w)$$

2) Enclosed on four sides; 60 feet of fencing.

$$A(w) = w(30 - w)$$

3) Enclosed on four sides; 516 feet of fencing

$$A(w) = w(258 - w)$$

4) Enclosed on three sides; 128 feet of fencing.

$$A(w) = w(128 - 2w)$$

For problems 5 - 7, you are given the initial velocity and initial height of a projectile. Write a function $h(t)$ for the height of the object after t seconds.

5) initial height = 85 feet
initial velocity = 72 ft/sec

$$h(t) = -16t^2 + 72t + 85$$

6) initial velocity = 50 ft/sec
initial height = 90 feet

$$h(t) = -16t^2 + 50t + 90$$

7) initial height = 23 feet
initial velocity = 30 ft/sec

$$h(t) = -16t^2 + 30t + 23$$

8) A parabola opens downward and has a vertex at $(-4, -5)$. Write a function, $f(x)$, of the parabola in vertex form.

$$f(x) = \frac{\text{neg}}{\#} (x+4)^2 - 5$$

Ex: $f(x) = -(x+4)^2 - 5$,
 $f(x) = -2(x+4)^2 - 5$, etc.

9) A parabola opens upward and has x-intercepts at $(-5, 0)$ and $(-12, 0)$. Write a function, $f(x)$, of the parabola in factored form.

$$f(x) = \frac{\text{pos}}{\#} (x+5)(x+12)$$

Ex: $f(x) = (x+5)(x+12)$,
 $f(x) = \frac{1}{2}(x+5)(x+12)$