NAME _____ DATE _____

Module 14 Graphing Quadratic Relations
Lesson 3 Solving Problems Using Quadratic Graphs

additional practice

1. The equation $h = -16t^2 + 2t + 28$ describes the height of a diver off a cliff with respect to time, where h is height in feet above the water and t is time in seconds after the jump. Just prior to the jump, $t = 0$. Answer the following questions:

a. What is the initial height of the diver?

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b. What is the maximum height of the diver?

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c. About how long did it take the diver to reach the water?

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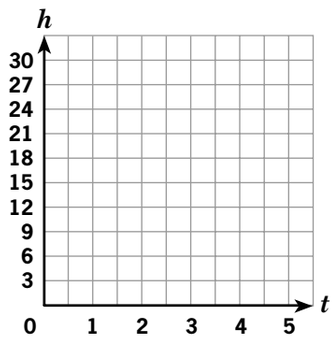
d. Graph the equation to show the height of the diver with respect to time.



2. John has 30 feet of fencing to use on a rectangular kennel for his dog. Answer the following questions:

a. Write an expression for the area of the kennel in terms of its width, w.

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b. What is the approximate maximum area of the kennel?

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c. What is the approximate width of the kennel for the maximum area?

_____

d. What is the shape the kennel with maximal area?

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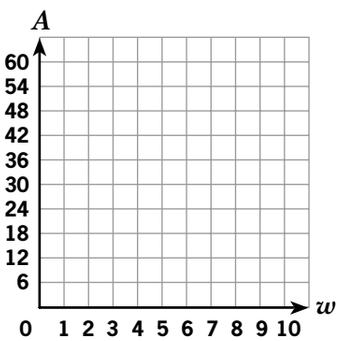
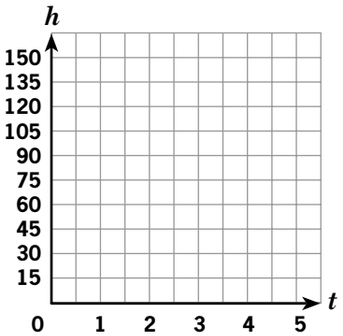
e. Graph the equation for area to show the kennel's area with respect to width.



3. The height of an object being dropped is modeled by the equation $h = -16t^2 + k$, where h is the height of the object in feet; t is time in seconds; and k is the initial height in feet. A pebble is dropped from an initial height of 144 feet. Answer the following questions:

a. Graph the equation to model the height of the pebble dropped over time.



b. About how long will it take for the pebble to reach a height of zero?

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