

Foundations Unit 8 Study Guide

We're jamming, I wanna jam wid you, yeah we're jamming, jammin...and I hope

ANSWER KEY

likes jammin too.

DIRECTIONS: Do all work on separate scratch paper. Your work must be neat, well organized, complete, and lead to the answer you give, circle your answers. Copy your answers to the appropriate place provide on this Study Guide.

OBJ. 1: Projectile Motion Application

1. The height of an object thrown into the air is given by the formula $h(t) = -4.9t^2 + 21t$, where $h(t)$ is in meters and t is in seconds. What is the height of the object after 2 seconds?

Just plug it in

Use the following for 2-3.

A ball is thrown into the air with an upward velocity of 64 ft/s. Its height, h , in feet after t seconds is given by the function

$$h = -16t^2 + 64t + 80.$$

2. How many seconds did it take for the ball to reach its **maximum** height **AND** what was the **maximum** height?

VERTEX so use $x = -b/2a$

3. When will the ball **hit the ground**?

Set = 0 and Solve

4. A rocket is launched into the air from a cliff that is 54 feet above the ocean. Its flight can be modeled by the equation

$$h(t) = -16t^2 + 138t + 54.$$

When will the rocket **hit the water**? **Set = 0 and Solve**

OBJ. 2: Solving Quadratics Application

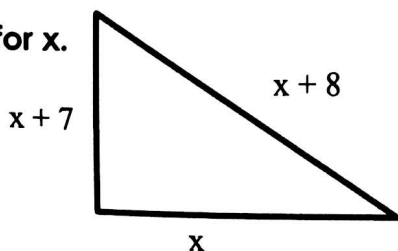
Use the following for 5 & 6.

The observed bunny rabbit population on an island is given by the function, $P(t) = -50t^2 + 700t + 6000$ where t is the time in months since they began observing the rabbits.

5. What is the maximum population of bunnies?

6. After how many months does the bunny rabbit population reach 8000? (Yes, there are two answers!)

7. Solve for x .



Objective	Score
1	A B NY
2	A B NY
3	A B NY
4	A B NY
5	A B NY

ANSWERS:

1.	22.4 ft	
2.	$2 \text{ sec. } 144 \text{ ft}$	
3.	5 sec.	
4.	9 sec.	
4/4 = 100		3/4 = 80 0-2 = NY
5.	8450 rabbits	
6.	$10 + 4 \text{ months}$	
7.	$x = 5 \quad 5, 12, 13$	
8.	28	
4/4 = 100		3/4 = 80 0-2 = NY
9.	$\frac{9}{16x^2 y^4}$	
10.	$5, \frac{4}{3}$	
11.	$7, 9, 11$	
12.	$5x^2 + 14x + 9$	
4/4 = 100		3/4 = 80 0-2 = NY
13.	Down; -8; $x = -3$; $(-3, 1)$; $(-2, -4)$; 1 max	
14.	5	
15.	-3	
16.	85	
4/4 = 100		3/4 = 80 0-2 = NY
17.	 	
18.	 	
19.	 	
20.	 	
4/4 = 100		3/4 = 80 0-2 = NY