

Foundations Unit 8 Test

"Life is a highway and

Answer Key

wants to drive it all night long"

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 $h(t) = -16t^2 + 41t$, where $h(t)$ is in meters and t is in seconds. What is the height of the object after 2 seconds?
 $-64 + 164$

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 $h = -16t^2 + 48t + 64$.

2. How many seconds did it take for the ball to reach its maximum height AND what was the maximum height?
3. When will the ball hit the ground?

4. A rocket is launched into the air from a cliff that is 64 feet above the ocean. Its flight can be modeled by the equation $h(t) = -16t^2 + 120t + 64$. When will the rocket hit the water?
 $2t^2 - 15t - 8$
 $-\frac{16}{2}$

OBJ. 2: Quadratics Application

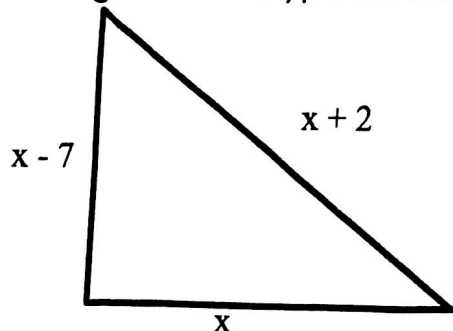
Use for 5 & 6:

The function $P(t) = -5t^2 + 70t + 600$ models a company's profit in thousands of dollars, where t is the number of years since 1990.

What is the company's maximum profit?

How many years after 1990 will the company make a profit of \$800?

Find the length of the hypotenuse.



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

ANSWERS:

1.	18 100 meters		
2.	1.5 sec. 100 ft		
3.	100 7 seconds		
4.	8 sec		
4/4 = 100 3/4 = 80 0-2 = NY			
5.	845		
6.	4 + 10 years		
7.	17		
8.	36 cm		
4/4 = 100 3/4 = 80 0-2 = NY			
9.	$\frac{25}{81}x^8y^{16}$		
10.	$\{-3/2, 4/3\}$		
11.	-7		
12.	$9x^2 - 35x + 7$		
4/4 = 100 3/4 = 80 0-2 = NY			
13.	up; 8; $x = 3$; (3, -1); {2, 4}; min		
14.	-3		
15.	-5		
16.	302 ft		
4/4 = 100 3/4 = 80 0-2 = NY			
17.			
18.			
19.			
20.			
4/4 = 100 3/4 = 80 0-2 = NY			