Foundations Unit 8 Study Guide

We’re jamming, I wanna jam wid you, yeah we’re jamming, jammin…and I hope \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_likes jammin too.

|  |  |
| --- | --- |
| **Objective** | **Score** |
| 1 | A B NY |
| 2 |  A B NY |
| 3 | A B NY |
| 4 | A B NY |
| 5 | A B NY |

ANSWERS:

|  |
| --- |
| **1.**  |
| **2.** |
| **3.** |
| **4.** |
| **4/4 = 100** | **3/4 = 80** | **0-2 = NY** |
| **5.** |
| **6.** |
| **7.** |
| **8.** |
| **4/4 = 100** | **3/4 = 80** | **0-2 = NY** |
| **9.** |
| **10.** |
| **11.** |
| **12.** |
| **4/4 = 100** | **3/4 = 80** | **0-2 = NY** |
| **13.** |
| **14.** |
| **15.** |
| **16.** |
| **4/4 = 100** | **3/4 = 80** | **0-2 = NY** |
| **17.** |
| **18.** |
| **19.** |
| **20.** |
| **4/4 = 100** | **3/4 = 80** | **0-2 = NY** |

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 $h\left(t\right)= -4.9t^{2}+21t$, 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 .

**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 . 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) = -50t2 + 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.**

x + 8

x + 7

x

**8**. If the measure of one side of a square is **increased** by 3 centimeters and the adjacent side is **decreased** by 3 centimeters, the **area** of the resulting **rectangle is 40** square centimeters. **Find the perimeter of the rectangle.**

**OBJ. 3: Review**

**9**. Simplify: (2x3y2)-4 (3x5y2)2

**Exponent rules to know: product rule, quotient rule, power to power, negative exponents**

**10**. Solve:  **How to solve: Set = 0, then use the x method (slide divide bottoms up)**

**Multiply**

**11**.Find the smallest of 3 **consecutive even integers** such that the **product** of **the larger two** is equivalent to the **sum** of the **smallest integer squared** and 50. **(n, n+1, n+2 or n, n+2, n+4)**

**ADD**

**12**. Find the area of the shaded region. **Area of Shaded Region = Big Area – Small Area**

 **Area = length \* width**

**Big Area =\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Small Area = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

2x + 5

x – 1

x + 4

3x + 1

 **OBJ. 4: Calculator Inactive**

1. 

|  |  |
| --- | --- |
| The parabola opens:(Circle One) |  Up or Down |
| y – intercept: |  |
| Axis of Symmetry: |  |
|  What is the vertex: |  |
| x-intercepts / roots / solutions / zeros |  |
| Which does the parabola have?(Circle one)  Maximum  Minimum  | What is the value of the minimum or maximum? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

1. **What is the smallest** of 3 **consecutive positive integers** if the **product** of the **smaller two integers** is 5 **less than** 5 times the **largest integer**?
2. What is/are the **negative zeros** of the function *f(x) = x2 – 9x – 36* ? **Set = 0 and Solve**
3. The function  *h(t) = -6t2 +56t + 85*  models the approximate height of an object  seconds after it is launched. What was the **height** of the object **when it was launched**? (**Starting height)**