PRACTICE Unit 2 Test

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| 1. Find the value of $s$. $\left(s-2\right)^{2}=200$
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| 1. Determine the roots of the equation. $x^{2}-x-42=0$
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| 1. Calculate the roots of the quadratic equation, if possible. Verify your solution. $4x^{2}+10x+6=0$
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| 1. Use the quadratic formula to find the zeros. $f\left(x\right)=x^{2}-8x+1$
 |
| 1. Graph. $f\left(x\right)=-x^{2}-6x-8$

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| 1. Find the zeros and write them in interval notation. $f(x)\leq -x^{2}-6x-8$
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| 1. Solve the system of equations algebraically over the set of real numbers.

$$\left\{\begin{array}{c}y=-3x+7 \\y=2x^{2}+9x+7\end{array}\right.$$ |
| 1. Simplify each expression by using $i$.
	1. $i^{77}$
	2. $\sqrt{-169}$
	3. $2+\sqrt{-128}$
	4. $(5-i)(2+4i)$
 |
| 1. List *all* words from the box that describe the number, $19.5$.

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| --- | --- | --- | --- |
| Natural Number | Whole Number | Integer | Rational Number |
| Irrational Number | Real Number | Imaginary Number | Complex Number |

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| 1. A ball on an unknown planet is tossed upward from a height of 60 feet with an initial vertical velocity of 48 feet per second. Its height can be modeled by the quadratic function

$h\left(t\right)=-12x^{2}+48x+60$, where $h\left(t\right) $is the height, in feet, of the ball, and $t$ is the time the ball has been in the air, in seconds.* 1. Determine the values of $a, b, $and$ c$.
	2. How long will it take for the ball to reach the ground after it has been tossed? Round to the nearest hundredth.
	3. Find the maximum height the ball will reach.
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Practice Unit 2 Test Answers

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|  | Topic | **Correct Answer** | Were you correct? | If not, do you know what you did wrong? |
| 1. | Solving for a variable using a square root. | $$s=2\pm 10\sqrt{2}$$ |  |  |
| 2. | Determining roots/zeros/x-intercepts/quadratic solutions | $$\left(-6, 0\right) or (7, 0)$$ |  |  |
| 3. | Determining roots/zeros/x-intercepts/quadratic solutions | $\left(-\frac{3}{2}, 0\right)or (-1, 0)$ or$\left(-1.5, 0\right) or (-1, 0)$  |  |  |
| 4. | Determining roots/zeros/x-intercepts/quadratic solutions | $$\left(4-\sqrt{15}, 0\right) or \left(4+\sqrt{15}, 0\right)$$ |  |  |
| 5. | Graphing a quadratic | Vertex: $(-3, 1)$Zeros: $\left(-4, 0\right) or (-2, 0)$*y*-intercept: $(0, -8)$ |  |  |
| 6. | Determining interval solutions for quadratic inequalities | $$[-4, -2] $$ |  |  |
| 7. | Solving a quadratic system of equations | $$\left(0, 7\right) \& (-6, 25)$$ |  |  |
| 8. | a. Simplifying imaginary exponentsb. Simplifying imaginary rootsc. Simplifying imaginary rootsd. Multiplying Complex Numbers | a. $i^{1}=$b. $13i$c. $2+8i\sqrt{2}$d. $14+18i$ | a.b.c.d. | a.b.c.d. |
| 9. | Classifying Numbers | Rational, Real, & Complex Number |  |  |
| 10. | a. Determining the coefficients A, B, & C on a quadraticb. Determining roots/zeros/x-intercepts/quadratic solutionsc. Determining the maximum value from the vertex | a. $a=-12,b=48, c=60$When you solve it, divide by 12 first & use:$$a=-1,b=4, c=5$$b. $\left(-1, 0\right) \& (5, 0)$c. 108 feet*(Since the vertex is (2, 108),* *the maximum height is y = 108)* | a.b.c. | a.b.c. |