Practice for Units 6 & 7 Name \_\_\_\_\_\_\_\_\_\_\_\_\_

Station 1 – Even and Odd Functions

Read and answer the questions on the back.













C. If$f(x)$ is an odd, one-to-one function with $f\left(5\right)=-2$ then which point *must* lie on the graph

 of its inverse $f^{-1}(x)$**?**

1. $(5,-2) $(2)$(2, -5)$(3) $(-5,2)$(4)$(2, 5)$

Station 2 – Transformations

1. Given the graph of$ f(x)$, sketch and the label the graph of the following functions using a different color for each.
2. $g\left(x\right)=2f(x-5)$
3. $h\left(x\right)=-f\left(2x\right)+3$
4. $k\left(x\right)=\frac{1}{2}f(\frac{1}{2}x)-2$



1. Suppose the point $\left(6,-1\right) $is a point of the graph of $f(x)$. For each of the following, state the coordinate of the point after the transformation.
2. $y=f(3x)$ \_\_\_\_\_\_\_\_\_
3. $y=f\left(x+2\right)$ \_\_\_\_\_\_\_\_\_
4. $y=f\left(x\right)+5$ \_\_\_\_\_\_\_\_\_
5. $y=\frac{1}{2}f\left(x\right)-3$ \_\_\_\_\_\_\_\_\_
6. $y=-4f\left(x-1\right)+2$ \_\_\_\_\_\_\_\_\_
7. $y=f\left(-\frac{1}{3}x\right)-7$ \_\_\_\_\_\_\_\_\_

Station 3 – Solving Equations

1. Solve the equation. Leave answers in simplest a + bi form.

$$8x^{2}+4x+5=0$$

1. Solve the equation. Check for extraneous solutions.

$$\sqrt{x+2}-3=2x$$

1. Solve the equation.

$$3(x+3)^{\frac{3}{4}}=81$$

Station 4 – Radicals and Powers of i

1. What is the product of $\sqrt[3]{4a^{2}b^{4}}$ and $\sqrt[3]{16a^{3}b^{2}}$ ?
	1. $4ab^{2}\sqrt[3]{a^{2}}$
	2. $4a^{2}b^{3}\sqrt[3]{a}$
	3. $8ab^{2}\sqrt[3]{a^{2}}$
	4. $8a^{2}b^{3}\sqrt[3]{a}$
2. Given $i$ is the imaginary unit, $(2-yi)^{2}$ in simplest form is
	1. $y^{2}-4yi+4$
	2. $-y^{2}-4yi+4$
	3. $-y^{2}+4$
	4. $y^{2}+4$
3. The expression $3\sqrt{-18}+5\sqrt{-12}$ is equivalent to
	1. $9\sqrt{2}i+10\sqrt{3}i$
	2. $6\sqrt{2}i+7\sqrt{3}i$
	3. $19\sqrt{5}i$
	4. $-90\sqrt{6}$
4. What is the sum of $ 5-3i$ and the conjugate of $3+2i$ ?
	1. $2+5i$
	2. $2-5i$
	3. $8+5i$
	4. $8-5i$
5. Simplify
6. $6i^{40}∙2i^{113}∙3i^{223}$ c) $6i^{40}+2i^{113}+3i^{223}$
7. $2i\left(-3i^{3}\right)^{3}$

1. **State the domain of** $y=\sqrt{2x+6}$
2. Simplify. Rationalize the denominator.
3. $\frac{2-5\sqrt{5}}{4\sqrt{13}}$
4. $\frac{2-\sqrt{3}}{4+\sqrt{3}}$
5. $\frac{5\sqrt{2}+\sqrt{3}}{5-5\sqrt{2}}$
6. **Simplify completely.**

|  |  |
| --- | --- |
| 1.
 | 1.
 |
| 1.
 | 1.
 |

Station 5 – Discriminant

Find the discriminant to determine the number of x-intercepts and the nature of the roots.

1. $2x^{2}-3x+2=0$
2. $3x+7=5x^{2}-4$
3. $9x^{2}+24x+16=0$
4. $x^{2}-7x+6=0$

Challenge:

1. Find all the values of $c$ such that $2x^{2}-6x+c=0$ has unequal, imaginary roots.

Station 6 – Review

1. Which of the following represents the trinomial $7x^{2}+16x-15$ written as a product?

1) $(x-5)(7x+3)$ 3) $(x-3)(7x+5)$

2) $(x+3)(7x-5)$ 4) $(x+5)(7x-3)$

1. Which number line below represents the solution set of the inequality$ x^{2}-x-6\leq 0$?
2. $-3\leq x\leq 2$ 3) $x\leq -3 or x\geq 2$
3. $x\leq -2 or x\geq 3$ 4) $-2\leq x\leq 3$



1.
2. For the piecewise function, which of the following represents$ f(2)$?
3. $-9 $ 2) $-8$ 3) $-3$ 4) $1$

