SECONDARY MATH 3

**CORE STANDARDS**

F.IF.7b

F.IF.7e

F.BF.3

LESSON

**7-3**

OBJECTIVE 1.I can graph parent functions of linear, quadratic, absolute value, cubic, square root, cube root, exponential, logarithmic, and trigonometric functions.

2. I can find function transformations.

NOTES

**Horizontal Shift:**

**Vertical Shift:**

**Reflections:**

$f\left(bx\right)$; stretches function horizontally by a factor of $\frac{1}{b}$.

$af(x)$; stretched function vertically by a factor of a.

**Horizontal Stretch:**

$af(x)$; stretches function vertically by a factor of a.

**Vertical Stretch:**

EXAMPLES



1. Given $f(x)$, graph each new function, without technology, and describe the effect of k on the original graph. Is the new function even odd or neither?

$$f\left(x\right)=x^{3}$$

* 1. $g\left(x\right)=-2f\left(x\right)$
	2. $h\left(x\right)=f\left(\frac{1}{3}x\right)$
	3. $j\left(x\right)=f\left(x\right)+2$
1. Determine the transformations that were used to change the given parent function to the function that is graphed, and write the equation of the transformed function.



PRACTICE **7-3** NAME\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Given $f(x)$, graph each new function without technology, and describe the transformation on the original graph. Is new the function even odd or neither.

1. $f\left(x\right)=x^{2}$
	1. $g\left(x\right)=f\left(x+6\right)$
	2. $h\left(x\right)=f\left(x\right)+4$
	3. $j\left(x\right)=2f(x)$
2. $f\left(x\right)=\sqrt{x}$
	1. $g\left(x\right)=-3f\left(x\right)+4$
	2. $h\left(x\right)=f\left(x-7\right)+2$
	3. $j\left(x\right)=4f(x+1)$
3. $f\left(x\right)=log\_{3}x$
	1. $g\left(x\right)=2f\left(-x\right)$
	2. $h\left(x\right)=-f\left(x\right)+3$
	3. $j\left(x\right)=f\left(x-1\right)-1$



1. $f\left(x\right)=\sin(x)$
	1. $g\left(x\right)=f\left(2x\right)$
	2. $h\left(x\right)=-\frac{3}{2}f\left(x\right)$
	3. $j\left(x\right)=f(-x)$



Determine the transformations that were used to change the given parent function to the function that is graphed, and write the equation of the transformed function

 5. $f\left(x\right)=x^{2}$ 6. $f\left(x\right)=\sin(\left(x\right))$ 7. $f\left(x\right)=x^{3}$