Name: _____ Date: _____ **Unit 6 Homework**

Even and Odd Polynomials Homework

Directions: Be sure to show all work, communicate your thought process, and justify your reasoning. Remember to check that your answers are complete, correct, and reasonable. Do not forget to complete the "Throwback" problems! ☺

IDENTIFY EACH FUNUCTION AS EVEN, ODD, OR NEITHER.
JUSTIFY YOUR ANSWERS COMPLETELY.

1. $f(x) = (x - 3)^3$

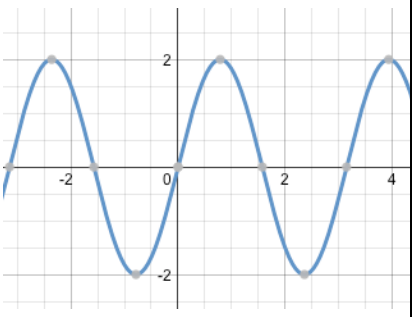
2. $d(x) = x^4 - 2x^2 + x^6$

3. $b(x) = 3x^7 - x$

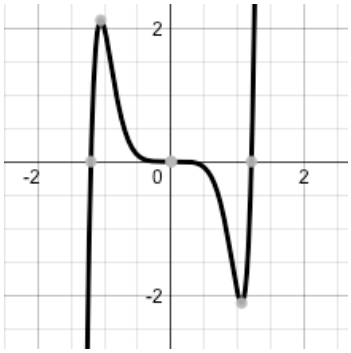
4. $h(x) = x^8 + 2x^2 + 2x$

5. **IDENTIFY EACH FUNUCTION AS EVEN, ODD, OR NEITHER. SUPPORT YOUR ANSWER.**

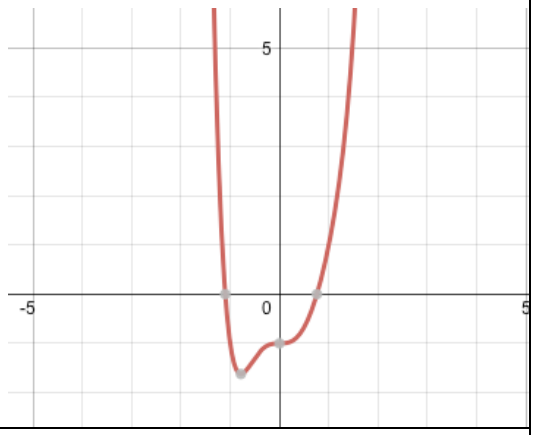
a.



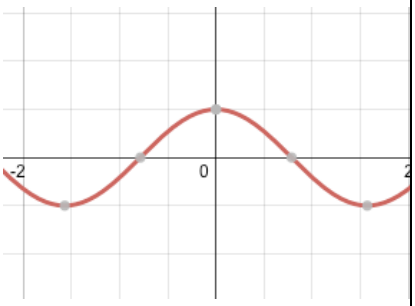
b.



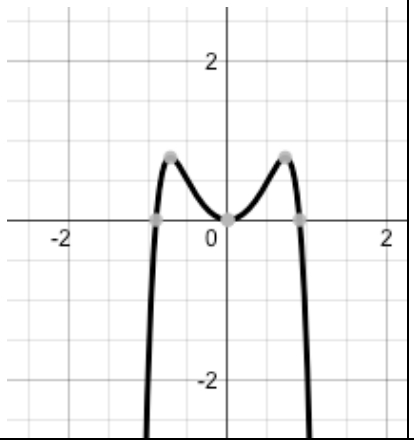
c.



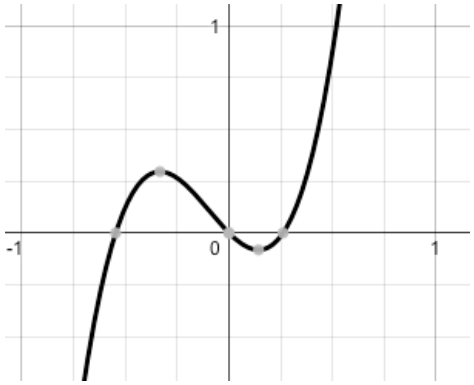
d.



e.



f.



THROWBACK!

1. Each box represents the system of equations including the one at the top of its column and to the left of its row. In each box, state how many solutions each graph will have. Choose from the following: infinite, none, one, two

	y = -x - 1	**y = x - 1**	**y = 2x**	**y = |x|**
4y + 4x = -4				
y = -x – 2				

2. Solve the system of equations.

$3x - 2y = -13$
$5y + 3x = -71$

3. Determine the solution to the system of linear equations.

$$x - 8y + 6z = -23$$
$$-2x + 8y - 6z = 20$$
$$2x + y - 6z = 25$$

Selected Solutions:

1. neither, since there is no equality between f(x), f(-x), or -f(x):

$f(x) = (x - 3)^3$

$f(-x) = (-x - 3)^3$

$-f(x) = -(x - 3)^3$

3. odd, since $f(-x) = -f(x)$:

$f(-x) = 3(-x)^7 - (-x) = -3x^7 + x$

$-f(x) = -(3x^7 - x) = -3x^7 + x$

5. a. odd, symmetric about origin

c. neither, not symmetric about origin or the y-axis

e. even, symmetric about y-axis

Throwback:

1.

Infinite (same line)	one	one	Zero
Zero (parallel)	one	one	Zero

2. (-69/7, -58/7)

3. (3, 1, -3)