

Name: _____ Date: _____

Even & Odd Functions

Algebraically: Even, Odd, Neither?

☆ A function is **even** if

- EVERY TERM IS EVEN

☆ A function is **odd** if

- EVERY TERM IS ODD

☆ A function is **neither** if

- THERE IS A MIXTURE OF EVEN AND ODD TERMS

What makes a term even or odd?

- IF THE **EXPONENT** IS EVEN OR ODD

Examples

Any number (-2, 65, 1/2)	x	x^2	x^3	x^4	x^5
EVEN	ODD	EVEN	ODD	EVEN	ODD

★ THE COEFFICIENT DOESN'T MATTER WHEN DETERMINING EVEN/ODD

Graphically: Even, Odd, Neither?

☆ A function is **even** if

- IT IS SYMMETRICAL ACROSS THE Y AXIS

☆ A function is **odd** if

- IF IT IS SYMMETRICAL ROTATED AROUND THE ORIGIN (0,0)

★ YOU COULD SPIN IT AROUND (0,0) AND IT WOULD STILL BE THE SAME.

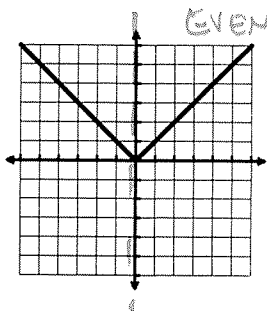
☆ A function is **neither** if

- HAS NO SYMMETRY

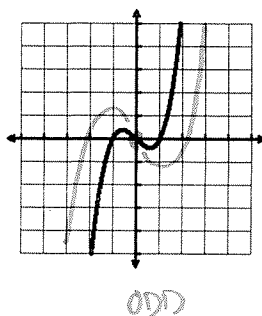
○ HAS SYMMETRY BUT NOT OVER THE Y-AXIS OR ROTATED AROUND THE ORIGIN

Examples: Even, Odd, Neither?

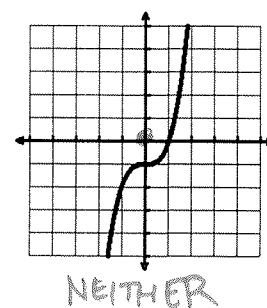
1.



2.



3.



4. $f(x) = x^2 + 1$
 E E

BOTH EVEN TERMS

EVEN

5. $f(x) = 2x^4 - 3x + 5$
 E O E

MIXTURE!

NEITHER

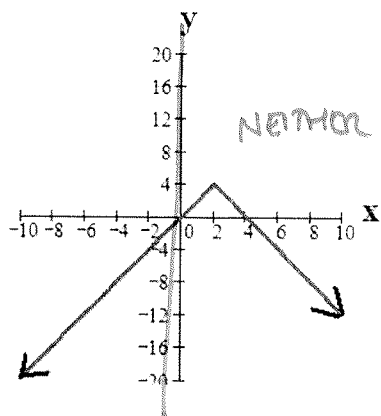
6. $f(x) = x^3 + x$
 O O

ODD

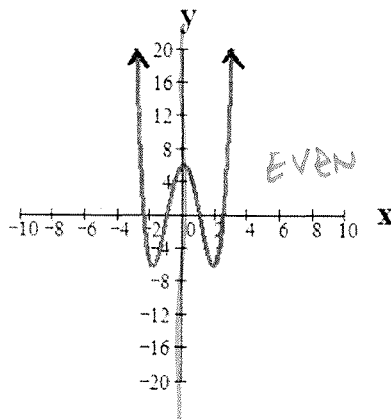
On your own practice!

Are the following even, odd, or neither?

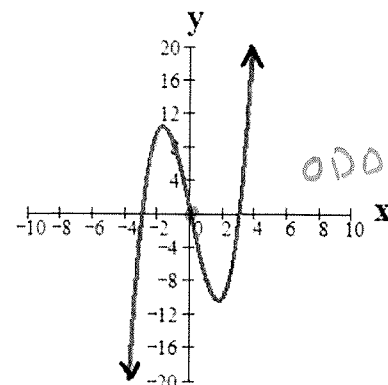
7.



8.



9.



10. $f(x) = -3x^3 + 5$
 O E

NEITHER

11. $f(x) = x^2 + 4$
 E E

EVEN

12. $f(x) = 4x^3 + 2x$
 O O

ODD