

Day 3 - Even and Odd Functions

Algebraically:

- A function is even if all the exponents in the function are even.
- A function is odd if all the exponents in the function are odd.
- A function is Neither if the exponents are a mixture of even/odd exp.

CAREFUL!!!!!! BEWARE OF CONSTANTS!!!!

All constants really have an x^0 . This means all constants are even even

Even, Odd, or Neither:

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

O

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

E

3. $f(x) = 2x^4 - 3$

E

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

O

5. $f(x) = 5x^3$

O

6. $f(x) = x^2 + 3$

E

7. $f(x) = x^3 - x^2$

N

8. $f(x) = -x^3 + 2x$

O

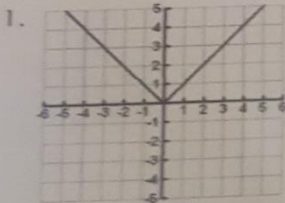
9. $f(x) = x^3 + 4x + 1$

N

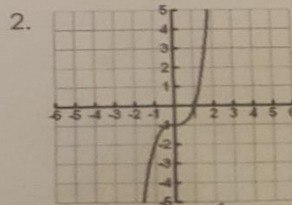
Graphically:

- A function is even if the graph reflects across y-axis.
 - You can fold it hot dog style and it would match up.
- A function is odd if the graph has a 180° rotational symmetry about the origin.
 - You can turn it upside-down and it would look the same.
 - It **MUST** go through the origin.

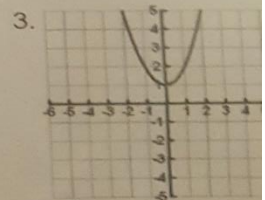
Even, Odd, or Neither?



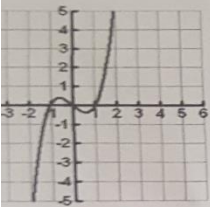
E



N

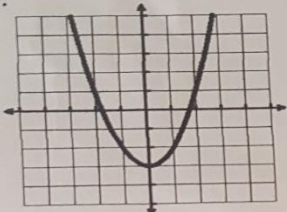


E



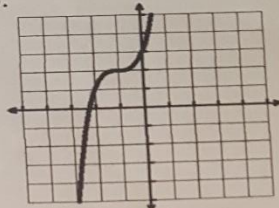
O

5.



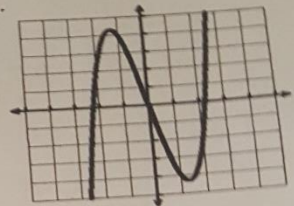
E

6.



N

7.



O

Odd, or Neither?

$$f(x) = 5x^3$$

O

$$2. f(x) = x^2 - 5$$

E

$$3. f(x) = x^3 - 2x^2$$

N

$$f(x) = -x^3 + x + 8$$

N

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

E

$$6. f(x) = x^3 + 8x$$

O