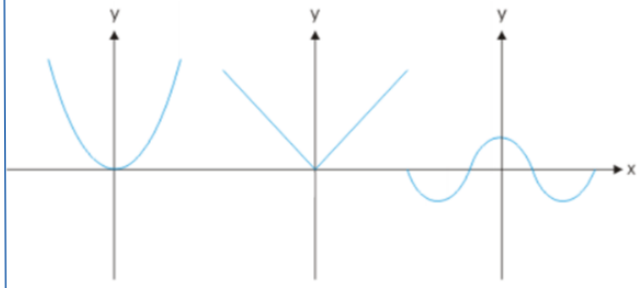
4.2 Even and Odd Functions

NOTES

Pre-Calculus

Write your questions here!

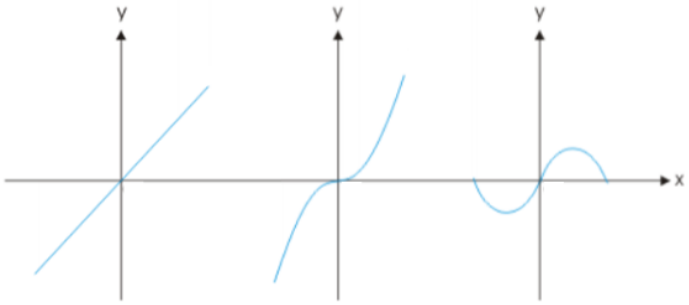
EVEN FUNCTIONS



Symmetric about y-axis $(-x, y)$

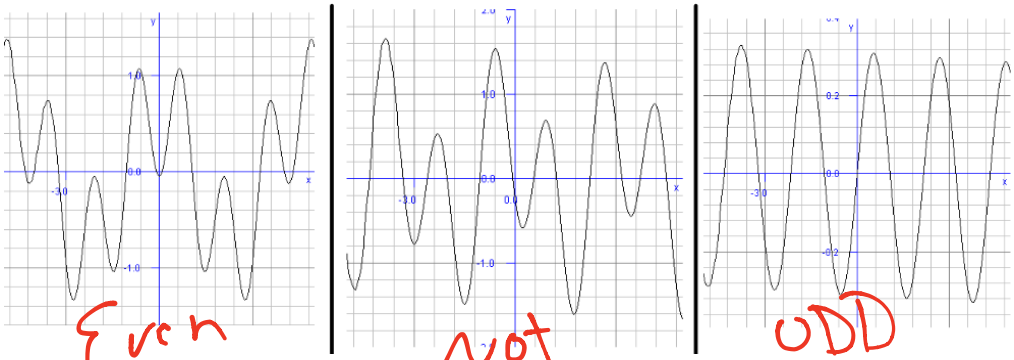
ODD FUNCTIONS

Symmetric about origin $(-x, -y)$



Are the functions Even, Odd, or Neither?

Graphically

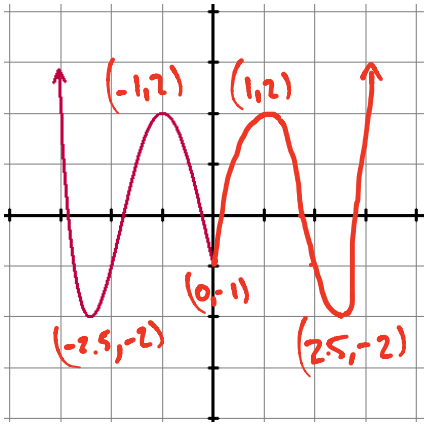


Even

not

ODD

EVEN



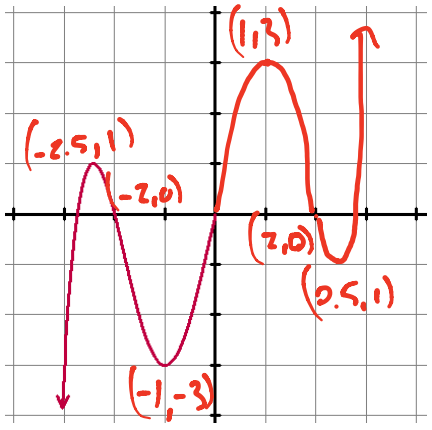
$f(-1)=2 \quad f(1)=2$

$f(-1)=f(1)$

$\therefore$ Even $f(-x)=f(x)$

$(x,y) \rightarrow (-x,y)$

ODD



$f(-1)=-3 \quad f(1)=3$

$\therefore$ ODD $f(-x)=-f(x)$

$(x,y) \rightarrow (-x,-y)$

Are the functions Even, Odd, or Neither?

Algebraically

$$f(x) = -2x^3 + 5x$$

ODD $(-x, -y)$

$-y = -2(-x)^3 + 5(-x)$

$-y = +2x^3 - 5x$

$y = -2x + 5x$

$$f(x) = \frac{x^2 + 1}{|x|}$$

EVEN $(-x, y)$

$y = \frac{(-x)^2 + 1}{|-x|}$

$y = \frac{x^2 + 1}{|x|}$

$$f(x) = \frac{x^4}{x^3 - 1}$$

ODD $(-x, -y)$

$-y = \frac{(-x)^4}{(-x)^3 - 1}$

$-y = \frac{x^4}{-x^3 - 1}$

$y = \frac{x^4}{x^3 + 1}$

Even $(-x, y)$

$y = \frac{(-x)^4}{(-x)^3 - 1}$

$y = \frac{x^4}{-x^3 - 1}$

Neither

SUMMARY:

Now, summarize your notes here!