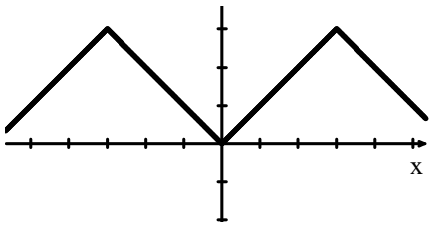
## 1.5B Even and Odd Polynomials

AP Precalculus

**1.5B Practice**

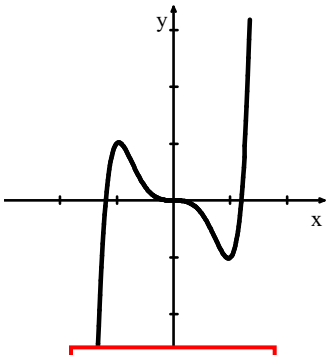
**State whether the following graphs represent functions that are even, odd, or neither.**

1.



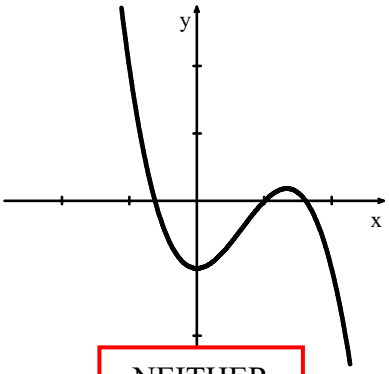

EVEN

2.



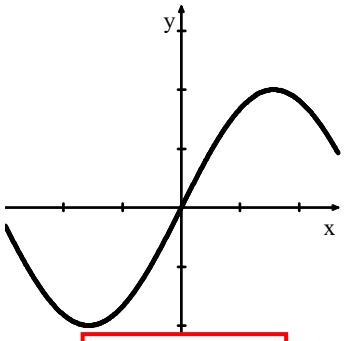

ODD

3.



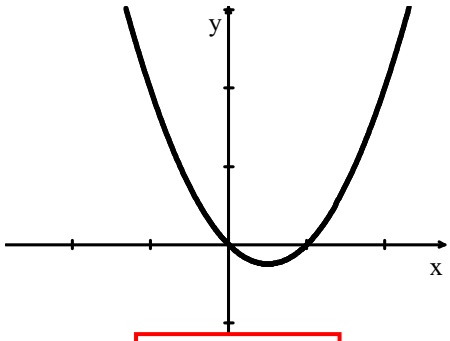

NEITHER

4.



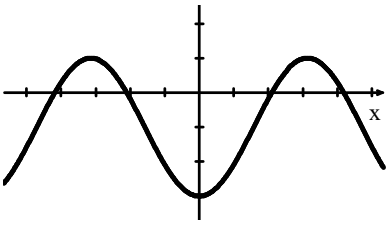

ODD

5.




NEITHER

6.




EVEN

**State if the following functions are even, odd, or neither.**

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

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

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

ODD

8. $g(x) = x^4 + 3x^2$

$g(-x) = (-x)^4 + 3(-x)^2$

$g(-x) = x^4 + 3x^2 = g(x)$

EVEN

9. $h(x) = -7x^6$

Simple form!

EVEN

10. $w(t) = 8t^5 + 2t$

$w(-t) = 8(-t)^5 + 2(-t)$

$w(-t) = -8t^5 - 2t = -w(t)$

ODD

11. $a(w) = 1 - w - w^3$

$a(-w) = 1 - (-w) - (-w)^3$

$a(-w) = 1 + w + w^3$

NEITHER

12. $f(x) = 2x^{10} + x^6 - 7x^2 - 2$

$f(-x) = 2(-x)^{10} + (-x)^6 - 7(-x)^2 - 2$

$f(-x) = 2x^{10} + x^6 - 7x^2 - 2 = f(x)$

EVEN

13. $h(t) = 4t^9$

Simple form!

ODD

14. $g(x) = x^2 + x - 3$

$g(-x) = (-x)^2 + (-x) - 3$

$g(-x) = x^2 - x - 3$

NEITHER

15. $b(x) = -4x^7 + x^3 - x$

$b(-x) = -4(-x)^7 + (-x)^3 - (-x)$

$b(-x) = 4x^7 - x^3 + x = -b(x)$

ODD

16. Is $f(x) = 7x^6 - x^4 + 5$ even, odd, or neither

$f(-x) = 7(-x)^6 - (-x)^4 + 5$

$f(-x) = 7x^6 - x^4 + 5 = f(x)$

EVEN

## 1.5B Even and Odd Polynomials

**1.5B Test Prep**

17. Certain values of $g(x)$ are given in the table below. Given that $g(x)$ is odd, fill in the missing values of the table.

| $x$ | $g(x)$ |
|---|---|
| $-5$ | 10.5 |
| 7 | $-22.5$ |
| $-9$ | $-38.5$ |
| $-7$ | 22.5 |
| 5 | $-10.5$ |
| 9 | 38.5 |

18. Given that $h(x)$ is continuous on $-5 \le x \le 5$ and odd, draw the graph $h(x)$ from $-5 \le x \le 0$.