

State whether the following is Even, Odd or Neither

1. $f(x) = 2x^4 - x^3 + 4x - 6$

neither - even & odd exponents

2. $f(x) = 8x^2 - 12x^0$

even - both exponents are even

3. $h(x) = -2x^3 + 5x^1$

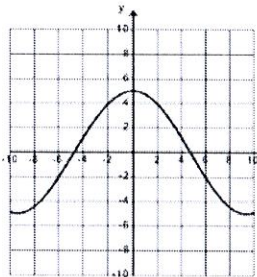
odd - both exponents odd

4. $f(x) = 7x^4 + 3x^2 - 4x^1$

neither - even & odd exponents

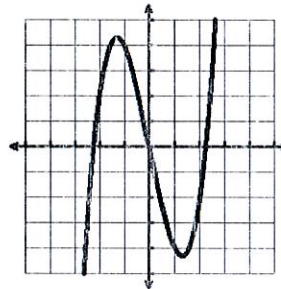
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5.



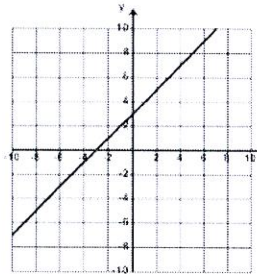
even - symmetric w/ y-axis

7.



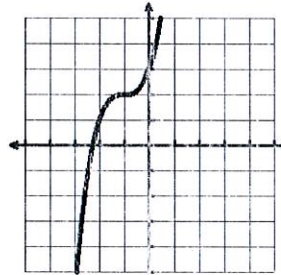
odd - symmetric with origin

6.



neither - can't fold on y-axis & same, can't rotate 180° & same

8.



neither

Use the graph and find the following:

9. Domain: $(-\infty, \infty)$ 10. Range: $[-3, \infty)$

11. Intervals of Increasing: $(-2, 0) (2, \infty)$

• tell you what y is doing over x-intervals

12. Intervals of Decreasing: $(-\infty, -2) (0, 2)$

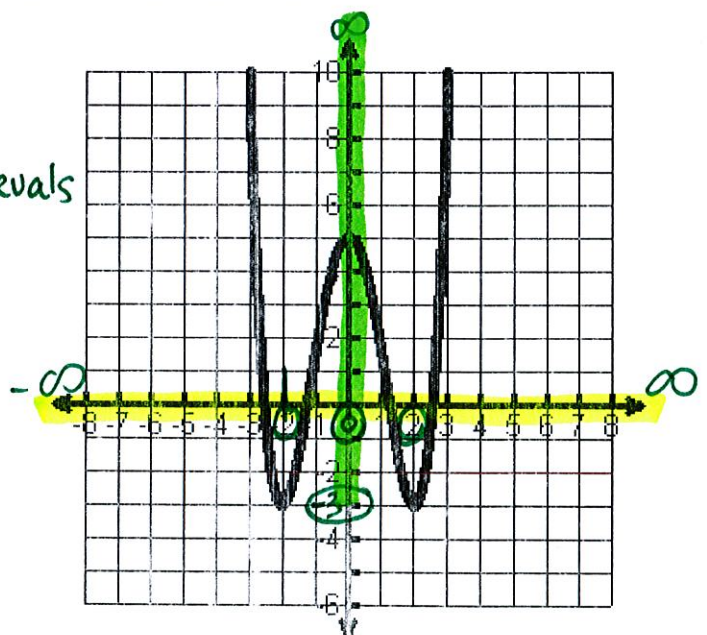
13. Relative Maximums: $(0, 5)$

14. Relative Minimums: (Absolute) $(-2, -3)$ & $(2, -3)$

15. # of Extrema: 3

16. Y-intercept $(0, 5)$

17. End Behavior As $x \rightarrow -\infty, f(x) \rightarrow \infty$
As $x \rightarrow \infty, f(x) \rightarrow \infty$



domain, increasing, & decreasing: all intervals come from x-axis

Factor each:

18. $\underline{20k^3 - 35k^2 + 12k - 21}$

$$5k^2(4k-7) + 3(4k-7)$$

$$(5k^2+3)(4k-7)$$

20. $\underline{2x^3 + 5x^2 - 8x - 20}$

$$x^2(2x+5) - 4(2x+5)$$

$$(x^2-4)(2x+5)$$

$$(x-2)(x+2)(2x+5)$$

22. $6p^3 - 9p^2 + 8p - 12$

$$(3p^2+4)(2p-3)$$

24. $c^3 + 2c^2 - 25c - 50$

$$(c-5)(c+5)(c+2)$$

26. $3b^3 + 8b^2 - 18b - 48$

$$(b^2-6)(3b+8)$$

28. $42x^3 + 49x^2 - 18x - 21$

$$(7x^2-3)(6x+7)$$

19. $\underline{x^3 + 2x^2 - x - 2}$

$$x^2(x+2) - 1(x+2)$$

$$(x^2-1)(x+2)$$

$$(x-1)(x+1)(x+2)$$

21. $25x^3 + 5x^2 + 10x + 2$

$$(5x^2+2)(5x+1)$$

23. $2m^3 + 3m^2 - 18m - 27$

$$(m+3)(m-3)(2m+3)$$

25. $15r^3 - 5r^2 - 9r + 3$

$$(5r^2-3)(3r-1)$$

27. $15x^3 - 25x^2 - 21x + 35$

$$(5x^2-7)(3x-5)$$

29. $49x^3 - 14x^2 + 7x - 2$

$$(7x^2+1)(7x-2)$$