

Spiral Review #5 KEY

1. Inverse variation $k = 3.36$ and the final answer is $F = 5.67$; so answer is choice B
2. The function is odd, choice C; <http://www.purplemath.com/modules/fcnot3.htm>

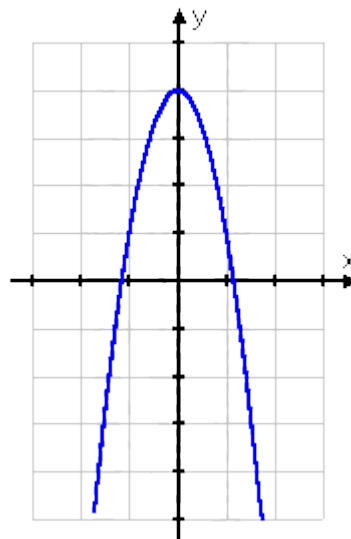
- **Determine algebraically whether $f(x) = -3x^2 + 4$ is even, odd, or neither.**

If I graph this, I will see that this is "symmetric about the y-axis"; in other words, whatever the graph is doing on one side of the y-axis is mirrored on the other side:

This mirroring about the axis is a hallmark of even functions.

Note also that all the exponents are even (the exponent on the constant term being zero: $4x^0 = 4 \times 1 = 4$).

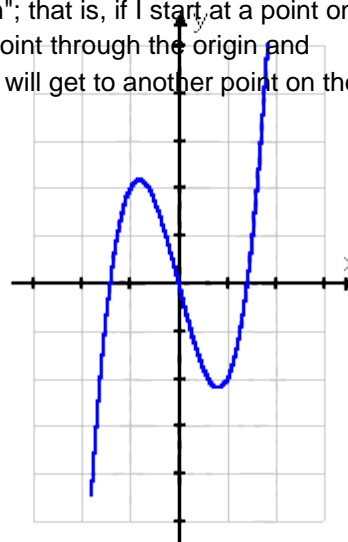
But the question asks me to make the determination *algebraically*, which means that I need to do it with algebra, not with graphs.



- So I'll plug $-x$ in for x , and simplify:
 - $f(-x) = -3(-x)^2 + 4$
 $= -3(x^2) + 4$
 $= -3x^2 + 4$
- My final expression is the same thing I'd started with, which means that **$f(x)$ is even.**
- **Determine algebraically whether $f(x) = 2x^3 - 4x$ is even, odd, or neither.**

If I graph this, I will see that it is "symmetric about the origin"; that is, if I start at a point on the graph on one side of the y-axis, and draw a line from that point through the origin and extending the same length on the other side of the y-axis, I will get to another point on the graph.

This symmetry is a hallmark of odd functions.



3. A
4. Tan function = opposite over adjacent; answer is C
5. Answer is A
6. Answer is B
7. D
8. C
9. B
10. A. 14