

1. Determine algebraically whether the following functions are even or odd.

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

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

$$h(x) = \sin x$$

$$k(x) = \cos x$$

2. Draw a rough sketch of the sum, difference, product and quotient functions using the functions indicated in the chart. Determine whether the combinations of functions are even, odd or neither.

Functions	Sum	Difference	Product	Quotient
$2x^2 + 1$ $f(x)$ even				
$x^3$ $g(x)$ odd				
$\cos x$ $k(x)$ even				
$\sin x$ $h(x)$ odd				

3. Using the results in the table above, complete each statement using "even", "odd", or "neither even nor odd".

- a) The sum of an even and odd function is neither.
- b) The sum of two even functions is even.
- c) The sum of two odd functions is odd.
- d) The difference of an even and odd function is neither.
- e) The difference of two even functions is even.
- f) The difference of two odd functions is odd.
- g) The product of an even and odd function is odd.
- h) The product of two even functions is even.
- i) The product of two odd functions is even.
- j) The quotient of an even and odd function is odd.
- k) The quotient of two even functions is even.
- l) The quotient of two odd functions is even.