Mat 122 1/20

1.2

Concavity

∪ concave up: graph curves upwards as we move ~~from~~ left to right

∩ down: downwards

1.3 New functions from old.

Algebraic operations:

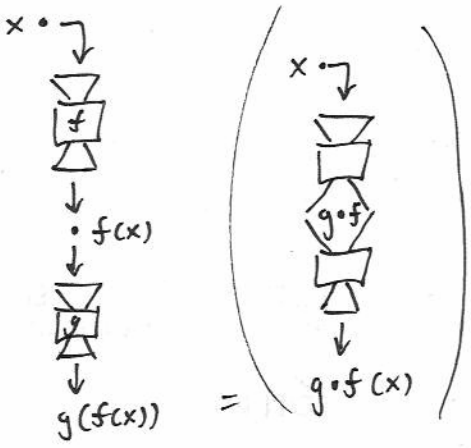
$(f \pm g)(x) = f(x) \pm g(x)$

$(f \cdot g)(x) = f(x) \cdot g(x)$

$\frac{f}{g}(x) = \frac{f(x)}{g(x)}$ defined where $g(x) \neq 0$.

Composition:

~~$f(g(x))$~~ $f(g(x)) = (f \circ g)(x)$



Examples:

$f(x) = \sqrt{x}$ $g(x) = 2x - 3$ $h(x) = \frac{1}{x}$

$f - g(x) =$

$g \cdot h(x) =$

$\frac{h}{g}(x) =$

$f(h(x)) =$

$g(g(x)) =$

Odd and Even functions

f is <u>even</u> if $f(-x) = f(x)$ for all x.

<u>odd</u> $f(-x) = -f(x)$

$f(x) = \frac{1}{x}$

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

$h(x) = e^x$