8.4 Functions

MATH 1010

I. Function is a set of ordered pairs (points)
Also another term given to graphs.

All graphs have a domain and range

Domain – list of all x's
Range – list of all y's

To be called a function, all x's must be different. x's cannot repeat

ex $(2,5)(3,7)(4,9)(5,11)$

Domain = 2, 3, 4, 5 Function? yes
Range = 5, 7, 9, 11

ex $(1,1)(2,-4)(-3,9)(5,1)(1,6)(4,-4)$

Domain = 1, 2, -3, 5, 1, 4 Function? no
Range = 1, -4, 9, 1, 6, -4

II Funtion notation: $f(x)$ pronounced f of x

$f(x) = y$ $f(x) = mx+b$ same as $y = mx+b$

8.4 continued

Again, a function is an equation that can be graphed.

X = input, plug in a number
y = output, answer

$f(x)$

↑ tells you what number to plug in & simplify

$f(x)$ is standard notation
but can use $g(x)$ or $h(x)$

ex Find the function value for
$f(x) = 3+2x$ or $g(x) = x^2-2$

$f(1)$ = plug into $f(x) = 3+2x$
$= 3+2(1)$
$= 3+2$
$= 5$

$g(2)$ = plug into $g(x) = x^2-2$
$= (2)^2-2$
$= 4-2$
$= 2$

$g(-3)$ = plug into $g(x) = x^2-2$
$= (-3)^2-2$
$= 9-2$
$= 7$

8.4 continued

$f(-8)$ = plug into $f(x) = 3 + 2x$

$= 3 + 2(-8)$

$= 3 - 16$

$= -13$

$g(0)$ = plug into $g(x) = x^2 - 2$

$= 0^2 - 2$

$= -2$

$f(0)$ = plug into $f(x) = 3 + 2x$

$= 3 + 2(0)$

$= 3$