10a) This set of ordered pairs is not a function because the domain value has more than one range value

(b)

c) Domain: {3, 4, 5, 6}
Range: {isosceles, equilateral, right, rectangle, rhombus, trapezoid, parallelogram, pentagon, hexagon}

d. Part A = true

5.2 Continued.... more functions

input		output
13	$y = 2x^2 - 5$	333
0		-5
2		3
-4		-3
8		5
5		45
10		195

Review: A function is any relation where each domain-value is associated with only one range value

Function Notation

$f(x) = 2x^2 - 5$ ← no multiplication; f of x; this function of x

$f(x)$ replaces y

0	$f(0)$	-5
2	$f(2)$	3
4	$f(4)$	27

$f(2) = 3$ → input: 2, output: 3 (is equal to)

$f(10) = 195$ → 10 is input, 195 is output

Equation in 2 variables

$y = 10x^2 - 100$

$y = 3x + 7$

$y = -2x^2 + 1$

$A = \pi r^2$

$p = 450n - 1000$

Function Notation

same thing as $y =$

$f(x) = 10x^2 - 100$

$f(x) = 3x + 7$

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

$A(r) = \pi r^2$ → Area as a function of the radius
- ↳ dependent
- ↳ independent

$p(n) = 450n - 100000$
- ↳ profit as a function of the # of people

there are infinite equations connecting x & y
We use other letters (f, g, h, etc) to write these in function notation

Ex 1: If $f(x) = 3x + 2$, find...

a) $f(5) = f(5) = 3(5) + 2$ (5 = input)

$= f(5) = 15 + 2$

$f(5) = \boxed{17}$ (17 = output)

(5, 17)
x y

* box = final answer

b) $f(-3) = f(-3) = 3(-3) + 2$

$f(-3) = -9 + 2$

$f(-3) = \boxed{-7}$

(-3, -7) ← coordinate point
in out

Ex 2: If $g(x) = 5x - 3$ find...

a) x if $g(x) = 7$

$g(x) = 5x - 3$

$\frac{+3}{7} = 5x - 3$

$\frac{10}{5} = \frac{5x}{5}$

$\boxed{2 = x}$

Show steps when isolating

new thought new line

(2, 7)
x y

b) x if $g(x) = -18$ ← output

$g(x) = 5x - 3$

$-18 = -5x - 3$

$+3 \quad +3$

this becomes -15 because it was $g(x) = -18$

$\frac{-15}{5} = \frac{-5x}{5}$

$\boxed{3 = x}$

(-3, -18)
x y

Ex 3: The equation $V = -0.08d + 50$ represents the volume (V litres) of gas in a tank after driving d kilometres. The tank is only refilled when it is empty

a) write the equation in function notation

$V(d) = -0.08d + 50$

V: volume depends on distance driven

b) Determine $V(60)$. Explain what this means

calculate ↓ $V(60) = 0.08(60) + 50$ After the vechile drives 60 km

$V(60) = 45.2$ there are 45.2L of gas in the tank

c) Find the value of d if $V(d) = 26$. Explain what this means

$26 = 0.08d + 50$

$-50 \quad\quad -50$

$\frac{-24}{-0.08} = \frac{-0.08d}{-0.08}$ $d = 300$

After the vechile drives 300 km, there is 26 litres of gas in the tank

HW= pg. 271-272 #6, 7, 14, 15, 17, 19