

DEPARTMENT OF MATHEMATICS

GRADES 4 TO 12

TERM-1, ACADEMIC YEAR 2017 – 18

Worksheet No.	2	Topic	Expressions & Functions		
Grade	7	Section	A - J	Date	21/11/2017
Student Name					

1. Simplify the following:

- a) $5 + 6y - 3y + 3$
- b) $5y + 3 - 2y$
- c) $7 + 6xy + 3 - 8xy$
- d) $4ab - 2a + 3ab + 9a$
- e) $2a^2 + 3a - 5a - 1$
- f) $4x^2 + 15x + 7x^2 - 2x$
- g) $4a^2 - 3a^2 + a^2 + a$
- h) $3a^2b + 5ab^2 - 6ab + 3ba^2 - 2b^2a + 11ab$
- i) $6m - 3n + 1m - 7n$

2. Expand the brackets and simplify:

- a) $4x + 2(x - 5)$
- b) $5x - 2(x + 8)$
- c) $5x - 2(x - 8)$
- d) $3(x + 7) + 6(3x + 4)$
- e) $4(2x + 5) + 3(3x - 4)$
- f) $6(x + 7) - 3(x + 4)$
- g) $3(8x - 4) + 4(2x + 5)$
- h) $6(y - 8) - 3(x + 5)$
- i) $3(2x + 12) - 7(3x - 4)$
- j) $9(8x - 5) - 7(8x - 9)$



3. Complete the table by filling in the boxes.

Function Machine	Function	Input	Output
Input \rightarrow $\boxed{x \ 4}$ \rightarrow $\boxed{+ \ 2}$ \rightarrow output	$F(x) = 4x + 2$	3	15
Input \rightarrow $\boxed{x \ 7}$ \rightarrow $\boxed{- \ 3}$ \rightarrow output		7	
Input \rightarrow $\boxed{+ \ 5}$ \rightarrow $\boxed{x \ 2}$ \rightarrow output	$F(x) = 2(x + 5)$	3	

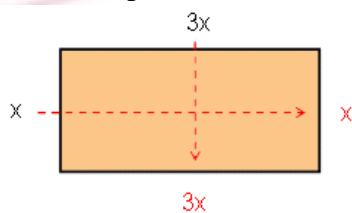
4. a.) For the function $f(y) = 3y + 7$, find $f(20)$ and $f(-7)$

b.) For the function $f(y) = 4 - 2y$, find $f(6)$ and $f(-6)$

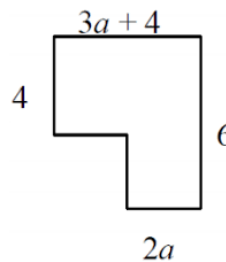
c.) For the function $f(y) = 7(y + 4)$, find $f(0)$ and $f(-8)$

5. Write an expression for each of the following:

- a) Sam is 12 years older than Dani. Dani is x years old. What is Sam's age?.....
- b) x chocolates are shared equally between 7 people. How many chocolates does each person get?.....
- c) I think of a number w , multiply it by 2 and then add 3.
- d) Write an expression for the area of shape A and perimeter of shape B



Shape A



Shape B

Answers:

1.)

- a) $3y + 8$
- b) $3y + 3$
- c) $10 - 2xy$
- d) $7ab + 7a$
- e) $2a^2 - 2a - 1$
- f) $11x^2 + 13x$
- g) $2a^2 + a$
- h) $6a^2b + 3ab^2 + 5ab$
- i) $7m - 10n$



2.)

- a) $6x - 10$
- b) $3x - 16$
- c) $3x + 16$
- d) $21x + 45$
- e) $17x + 8$
- f) $3x + 30$
- g) $32x + 8$
- h) $6y - 3x - 63$
- i) $-15x + 64$
- j) $16x + 18$

3.)

Function Machine	Function	Input	Output
Input \rightarrow $\boxed{\times 4}$ \rightarrow $\boxed{+ 2}$ \rightarrow output	$F(x) = 4x + 2$	3	15
Input \rightarrow $\boxed{\times 7}$ \rightarrow $\boxed{- 3}$ \rightarrow output	$F(x) = 7x - 3$	7	46
Input \rightarrow $\boxed{+ 5}$ \rightarrow $\boxed{\times 2}$ \rightarrow output	$F(x) = 2(x + 5)$	3	16

4.)

- a) 67 and -14
- b) -8 and 16
- c) 28 and -28

5.)

- a) $x + 12$
- b) $x \div 7$
- c) $2w + 3$
- d) Shape A \rightarrow Area = $3x^2$
Shape B \rightarrow Perimeter = $6a + 20$