



## Provincial Department of Education Sabaragamuwa- week school

Subject - Mathematics

Week-

Grade 10

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Do the review exercise in your text book to recall the facts you have learnt earlier about simplifying algebraic expressions.

### Product of two binomial expressions

$$1) (x + 7)(x - 3)$$

$$x(x - 3) + 7(x - 3)$$

$$x^2 - 3x + 7x - 21$$

$$2)(2y + 5)(y - 2)$$

$$2y(y - 2) + 5(y - 2)$$

$$2y^2 - 4y + 5y - 10$$

$$2y^2 + y - 10$$

$$3) (3x + 5)(2x + 3)$$

$$3x(2x + 3) + 5(2x + 3)$$

$$6x^2 + 9x + 10x + 15$$

$$6x^2 + 19x + 15$$

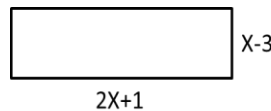
$$4) (5x - 2y)(2x - 3y)$$

$$5x(2x - 3y) - 2y(2x - 3y)$$

$$10x^2 - 15xy - 4xy + 6y^2$$

$$\underline{10x^2 - 19xy + 6y^2}$$

5) Find the area of this rectangle using x.



$$\text{Area} = (2X+1)(X-3)$$

$$= 2X(X-3) + 1(X-3)$$

$$= 2X^2 - 6X + X - 3$$

$$= \underline{2X^2 - 5X - 3}$$

Do the exercise 4.1

### Squares of Binomial Expressions

Examples for squares of binomial expressions

$$(Y+1)^2, (2X-3)^2, (5a-7y)^2, \dots$$

EX :- 1)  $(x + 3)^2$

$$(x + 3)(x + 3)$$

$$x(x + 3) + 3(x + 3)$$

$$x^2 + 3x + 3x + 9$$

$$x^2 + 6x + 9$$

2)  $(3x - 5)^2$

$$(3x - 5)(3x - 5)$$

$$3x(3x - 5) - 5(3x - 5)$$

$$9x^2 - 15x - 15x + 25$$

$$9x^2 - 30x + 25$$

3) Fill in the blanks.

$$(x + y)^2$$

$$(x + y)(\dots \dots)$$

$$x (\dots \dots) + y(\dots \dots)$$

$$x^2 + \dots + xy + \dots$$

$$x^2 + 2xy + y^2$$

$$(x + y)^2 = x^2 + 2xy + y^2$$

Using above expansion we can find the squares of binomial expressions directly.

Ex:	1) $(x + 5)^2$	2) $(3x - 5y)^2$	3) $10^2$
	$x^2 + 2 \times x \times 5 + 5^2$	$(3x)^2 + 2 \times 3x \times -5y + (-5y)^2$	$(7 + 3)^2$
	$x^2 + 10x + 25$	$9x^2 - 30xy + 25y^2$	$7^2 + 2 \times 7 \times 3 + 3^2$
			$49 + 42 + 9$
			100

4) If  $x + y = 10$  and  $xy = 24$ , Find the value of  $x^2 + y^2$

$$(x + y)^2 = x^2 + 2xy + y^2$$

$$10^2 = x^2 + 2 \times 24 + y^2$$

$$100 = 48 + x^2 + y^2$$

$$100 - 48 = 48 + x^2 + y^2 - 48$$

$$\underline{52 = x^2 + y^2}$$

Do the exercise 4.2