

MATHEMATICS



Topic: Substitution

Substitution “means” replace

- ❖ “Note “ Remember that we can find the numerical value of an algebraic expression by replacing the variable with known values, or constant. When substituting numbers for variables, put them into brackets in the equation.
- ❖ **ab** means **a** multiplied by **b** so again it helps to put the value we substitute for **a** and **b** into brackets to perform the multiplication correctly.

For example, *if $a = -2$ and $b = -3$ then $ab = (-2)(-3) = +6$*

Worked examples

1. Given the expression
 $3x^2 - 2x + 5$

Find the value of the expression. *If $x = 5$*

When $x = 5$

$$= 3x^2 - 2x + 5$$

$$= 3(5)^2 - 2(5) + 5$$

$$= 75 - 10 + 5$$

$$= 70$$

Replace variables

2. Find the value of the expression. $xy - 3y + x^3$

If $x = -2$ and $y = 4$.

$$xy - 3y + x^3$$

$$= (-2)(4) - 3(4) + (-2)^3$$

$$= -8 - 12 - 8$$

$$= -28$$

Exercises

Exercise 8.13 pg 102

- | | | |
|-----|-----|-----|
| 1. | 4. | 7. |
| 1.1 | 4.1 | 7.1 |
| 1.2 | 4.2 | 7.2 |
| 2. | 5. | |
| 2.1 | 5.1 | |
| 2.2 | 5.2 | |
| 3. | 6. | |
| 3.1 | 6.1 | |
| 3.2 | 6.2 | |

Exercise 8.16 pg 105

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|-----|-----|
| 1. | 3.1 |
| 1.1 | 3.2 |
| 1.2 | |
| 1.3 | |
| 2. | |
| 2.1 | |
| 2.2 | |
| 2.3 | |
| 3. | |