Module 3.A : Algebra- Solving Equations

Learning Objectives:
1. Evaluate an equation if the variables are specified.
2. Evaluate an absolute value equality if the variables are specified.
3. Solve a linear equation.
4. Solve a system of linear equations.
5. Solve a quadratic equation.
6. Solve an application word problem.
7. Solve a linear inequality.
8. Solve a quadratic inequality.
9. Solve an absolute value inequality.

SECTION 1 : Evaluate an equation if the variables are specified.

EXERCISE 1

If \( x = -5 \) and \( y = 6 \), then \( 4y + 3x = \)

SOLUTION

\[ 4(6) + 3(-5) = 24 - 15 = 9 \]

SECTION 2 : Evaluate an absolute value equality if the variables are specified.

EXERCISE 2

Evaluate a) \( |x| - |5x - 3| \) if \( x = -6 \). b) \( \frac{|x|}{|2 - x|} - 3|x| \) if \( x = -2 \).

SOLUTION

a) \[ |-6| - |5(-6) - 3| = 6 - |30 - 3| = 6 - |27| = 6 - 27 = -21 \]

b) \[ \frac{|-2|}{|2 - (-2)|} - 3|-2| = \frac{2}{|4|} - 3(2) = \frac{2}{4} - 6 = \frac{1}{2} - 6 = \frac{1}{2} - \frac{12}{2} = -\frac{11}{2} \]
ASSESSMENT 1

1. If \( x = -3 \) and \( y = 4 \), then \( 5y - 2x = \)
   
   A -23  B -7  C 14  D 26  E I do not know

2. Evaluate \(|2x| - |x - 3|\) if \( x = -2 \).
   
   A 3  B 1  C -1  D 5  E I do not know