PLANIT TEACHERS

Introduction to Algebra Diagnostic Assessment

Student Name: _____	**Class:** _____
Student ID: _____	**Date:** _____

Assessment Details

Duration: 45 minutes	**Total Marks:** 100
Topics Covered:	• Variables and Constants • Linear Equations • Graphing • Algebraic Expressions

Instructions to Students:

1. Read all questions carefully before attempting.
2. Show all working out - marks are awarded for method.
3. Calculator use is permitted except where stated otherwise.
4. Write your answers in the spaces provided.
5. If you need more space, use the additional pages at the end.
6. Time management is crucial - allocate approximately 1 minute per mark.

Section 1: Variables and Constants [20 marks]

Question 1 [2 marks]

What is the value of x in the equation 2x + 5 = 11?

A) x = 2

B) x = 3

C) x = 4

D) x = 5

Question 2 [2 marks]

Which of the following is an example of a constant?

A) x

B) 5

C) 2x

D) x + 2

Question 3 [4 marks]

Define the term "variable" and provide an example.

Question 4 [4 marks]

Explain the concept of a constant in algebra.

Section 2: Linear Equations [30 marks]

Question 5 [2 marks]

Solve for x: x - 3 = 7

A) x = 4

B) x = 5

C) x = 10

D) x = 12

Question 6 [3 marks]

Solve the equation 2x + 5 = 11 and explain your steps.

Question 7 [3 marks]

Write an equation to represent the statement: "5 more than 3 times a number is equal to 20".

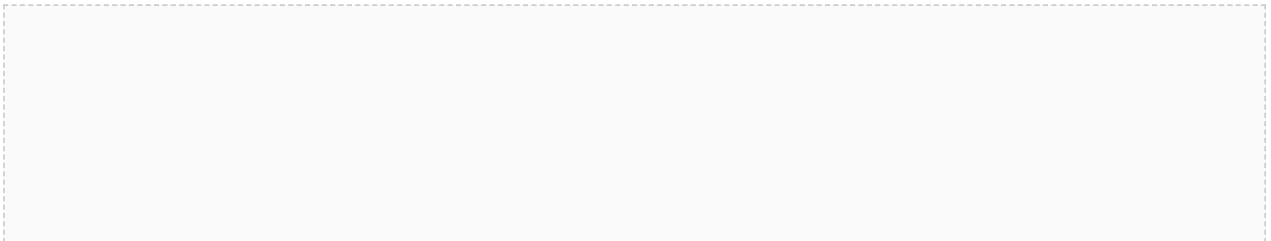## Section 3: Graphing [20 marks]

Question 8 [3 marks]

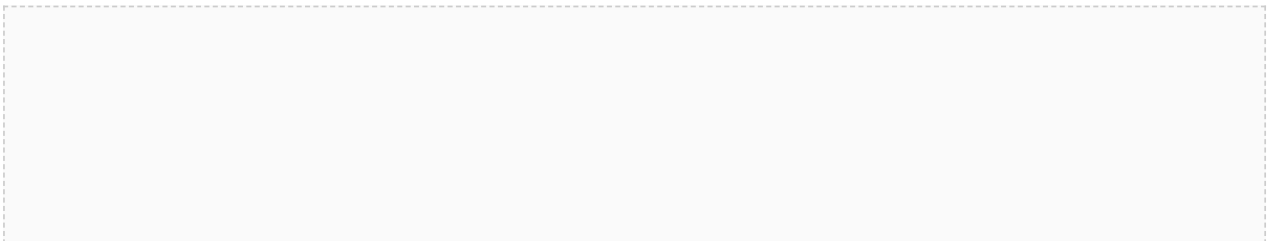Graph the equation y = 2x - 3 on a coordinate plane.

Question 9 [2 marks]

Plot the points (2, 3), (4, 5), and (6, 7) on a coordinate plane.

Question 10 [2 marks]

Identify the x-intercept of the graph of the equation y = x - 2.

Section 4: Algebraic Expressions [30 marks]

Question 11 [2 marks]

Which of the following is an example of an algebraic expression?

A) 2x + 3

B) 5

C) x - 2

D) 2x - 3

Question 12 [4 marks]

Simplify the expression: 2x + 3 + 4x - 2

Question 13 [4 marks]

Write an algebraic expression to represent the phrase: "the sum of 2 times a number and 5".