# Mathematics Exam Questions

### Question 1: Linear Graphs

(a) Given the equation y = x + 7, copy and complete the table below:

x | -4

y | \_\_\_\_

(b) Find the value of y when x = 3.5.

---

### Question 2: Sets and Venn Diagrams

(a) Given:

- Universal set ξ = {1, 2, 3, ..., 20}

- N = {even numbers}

- F = {numbers divisible by 5}

- G = {numbers greater than 13}

Draw a Venn diagram showing ξ, N, F, and G.

(b) Make h the subject of the formula:

V = (1/3)πr³h

---

### Question 3: Substitution and Evaluation

(a) Find the value of:

2π √(L/g) when π = 37, L = 98, g = 32

(b) List the elements of the set:

{x: -2 ≤ x < 9, x ∈ ℤ}

---

### Question 4: Word Problem (Venn Diagram Application)

A survey of 60 students was conducted to find out what they did last night:

- 16 students read a book

- 41 students watched television

- 9 students did neither activity

How many students did both activities?

---

### Question 5: Set Operations and Algebra

(a) Given:

- Universal set ξ = {1, 2, ..., 10}

- A = {1, 2, 5, 7}

- B = {1, 3, 6, 7}

Write down:

- The complement of A (A')

- The complement of B (B')

- The complement of A ∩ B ((A ∩ B)')

- The complement of A ∪ B ((A ∪ B)')

(b) Solve the equation:

2a + 20 = 5a + 6