

# AAIAA

## Mathematics Placement Test

The placement test is administered to all candidate students that are interested in joining and have been accepted for admission into AAIAA. The test is given to the new students and its results are used to assess the students' mathematics backgrounds. The Mathematics Placement Test covers Arithmetic, Algebra, Geometry and Trigonometry and has duration of one hour. The test will have 60 questions and the questions are a combination of multiple choice and short answer types.

Areas included in the test for each of the subjects include:

**Arithmetic:** Arithmetical operations, factors, multiples, fractions, decimals, percentages, averages, ratios, and proportions.

**Algebra:** Algebraic expressions, polynomials, arithmetical operations, factorization, powers and indices, linear equations and graphs.

**Geometry:** Geometrical constructions, height, median, bisector of angle, center of gravity of some shapes, perimeter and areas.

**Trigonometry:** Sine, cosine and tangent functions.

## Sample Placement Test

### I- Choose the correct answer

1. What is the general term for all types of numbers in Arithmetic?
  - a. Natural number
  - b. Integers
  - c. Real numbers
2. The value of  $\frac{22}{7}$  is
  - a. rational
  - b. Irrational
  - c. simple decimal
3. Find the product of 453 and 35
  - a. 1585
  - b. 488
  - c. 15855
4. Find the decimal form of  $6\frac{2}{5}$ 
  - a.  $\frac{12}{5}$
  - b.  $\frac{32}{5}$
  - c. 6.4
5. Which are the prime factors of 36?
  - a. 2 and 3
  - b. 3 and 12
  - c. 4 and 9
6. Find the LCM of 12 and 18.
  - a. 24
  - b. 30
  - c. 36
7. Use proper steps to find,  $-(5-3)^2 \div 4 + 1$ 
  - a. -0.8
  - b. 0.8

c. 0

8. What is the algebraic expression of 'six less than a certain number'?

a.  $x - 6$

b.  $6 - x$

c.  $6x$

9. Add the following polynomials:  $(2x^2 + 6x - 1) + (-7x + 3)$

a.  $2x^2 + 13x - 4$

b.  $2x^2 + x - 2$

c.  $2x^2 - x + 2$

10. Simplify  $\frac{5y + 2y^2}{7y}$

a.  $\frac{5y + 2y}{7}$

b.  $\frac{5 + 2y^2}{7}$

c.  $\frac{5 + 2y}{7}$

11. What is the value of  $x$  in the following equation:  $5x + 4 = 7x$ ?

a. -2

b. 2

c.  $\frac{1}{3}$

12. Evaluate  $\frac{m^4 \times m^{-2}}{m^{-3}}$

a.  $m^3$

b.  $m^4$

c.  $m^5$

13. What is the sum of interior angles of a parallelogram?

a.  $90^\circ$

b.  $180^\circ$

c.  $360^\circ$

14. Where is the center of gravity (centroid) of a triangle

a. At the intersection of heights

b. At the intersections of medians

c. At the intersections of bisectors of angles

15. In right angled triangle the sine of an acute angle is equal to

- a.  $\frac{\text{adjacent side}}{\text{Hypotenuse}}$
- b.  $\frac{\text{opposite side}}{\text{Hypotenuse}}$
- c.  $\frac{\text{opposite side}}{\text{adjacent side}}$

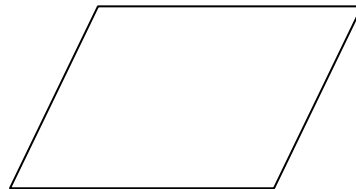
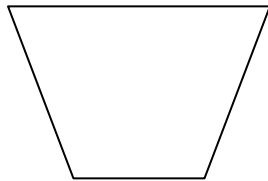
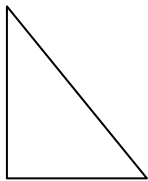
## II. Short Answer

1. Convert the improper fraction  $\frac{25}{8}$  into a mixed number.

2. What is the average of the following numbers 30, 32, 35, and 27?

3. The sum of twice a number and 7 is 25. What is the number?

4. Label the following geometric shapes.



5. Calculate  $\tan \theta$  from the triangle shown below.

