MISMO

Maarif Inter School Maths Olympiad

An initiative of

PAK-TURK MAARIF
INTERNATIONAL SCHOOLS & COLLEGES

MISMO 2022

Syllabus and Sample Questions - Grade 7

MISMO Syllabus– Grade 7

MISMO Content Assessment Percentage

Content Domains	Percentages
Numbers and Algebra	50%
Measurement and Geometry	30%
Data Handling	20%

Numbers and Algebra

Rational Numbers

- Demonstrate understanding of properties of rational numbers and operations on rational numbers;
- Find HCF and LCM, evaluate positive integer powers of numbers,
- Evaluate square and square roots, cube and cube roots and solve related problems.
- Compute and solve problems with positive and negative numbers, including through movement on the number line or various models (e.g., losses and gains, thermometers).
- Simplify mathematical expressions involving Rational Numbers.
- Round off numbers to the required number of decimal places and significant figures

Fractions and Decimals

- Using various models and representations, compare and order fractions and decimals, and identify equivalent fractions and decimals.
- Compute with fractions and decimals, including real life situations.

Ratio, Proportion, and Percentage

- Solve problems involving percentage change and reverse percentage.
- Identify and find equivalent ratios; divide a quantity according to a given ratio.
- Solve problems involving direct and inverse proportions.
- Solve problems involving ratio, rate, time and speed.

Algebra

Expressions, Operations, and Equations

- Recognise and continue number patterns along with real-life situations.
- Find the value of an expression or formula when the values of the variable are given.
- Expand, simplify and factorize quadratic expressions and equations.
- Construct and Evaluate an unknown in a formula.
- Formulate linear equations to solve word problems.
- Solve real life problems involving simultaneous linear equations in two variables.
- Solve simple linear inequalities.

Relationships and Functions

- Interpret, relate and generate representations of linear functions in tables, graphs, or words;
- identify properties of linear functions including slope and intercepts.
- Draw graphs of linear equations in the form of $ax + by = k$
- Solve problems involving linear graphs in real world contexts
- Solve simultaneous linear equations in two variables using Graphical Method.

Measurement and Geometry

Measurement

- Identify and draw types of angles and pairs of lines and use the relationships between angles on lines and in geometric figures to solve problems.
- solve problems involving points in the Cartesian plane.
- Solve problems involving quadrilaterals and polygons
- Find the perimeter and area of parallelogram and trapezium.
- Find volume and surface area of prisms and cylinders

Data handling

Reading, Interpreting and Representing Data

- Read and interpret data from tables, pictographs, bar graphs, line graphs,
- Organize and represent data to answer questions.
- Solve real-life situations using ungrouped and grouped data to calculate mean, median, mode, and range.

MISMO 2022
Sample Questions

Sample Questions MISMO 2022 – Grade 7

1. In a sale, the price of a coat is reduced by 25%.

   The sale price is $120.

   Calculate the price of the coat before the sale.
   - A. $96
   - B. $160
   - C. $200
   - D. $260

2. In 2019 Naheed's annual income was $22 000.

   She spent $7260 on accommodation in 2019.

   Calculate the percentage of her income she spent on accommodation.
   - A. 23%
   - B. 33%
   - C. 43%
   - D. 53%

3. Identify the two steps that will solve the equation $2x - 7 = 1$.
   - A. Add 7 to both sides of the equation, then multiply both sides of the equation by 2.
   - B. Add 7 to both sides of the equation, then divide both sides of the equation by 2.
   - C. Subtract 7 from both sides of the equation, then multiply both sides of the equation by 2.
   - D. Subtract 7 from both sides of the equation, then divide both sides of the equation by 2.

4. What is the solution of the equation $2x - 7 = 1$?
   - A. −4
   - B. −3
   - C. 4
   - D. 6

5. Johnny jogged around the track 16 times. Each lap is 400 meters.

   Which process could determine the total distance he jogged?
   - A. add 16 and 400
   - B. divide 400 by 16
   - C. multiply 400 by 16
   - D. subtract 16 from 400

6. What is the value of x in $3(x - 4) = -21$?

    A. $x = -11$

    B. $x = -3$

    C. $x = 3$

    D. $x = 11$

7. Sonia walks to her aunt's house. She leaves home at 1025.

    She walks a total of 12 km at an average speed of 5 km/h.

    Work out the time Sonia arrives at her aunt's house.

    A. 11 24

    B. 12 49

    C. 13 05

    D. 14 11

8. Find the fraction which lies exactly halfway between 3/5 and 5/7 .

    Give your answer in its simplest form.

    A. $\dfrac{46}{35}$

    B. $\dfrac{23}{35}$

    C. $\dfrac{13}{20}$

    D. $\dfrac{65}{10}$

9. Sidra buys a vase for $40 and sells it for $200.

    Calculate her percentage profit.

    A. 80%

    B. 160%

    C. 240%

    D. 400%

10. y is proportional to $(x - 1)^2$.

    Given that y = 18 when $x = 4$, find y when $x = 6$

    A. 32

    B. 50

    C. 72

    D. 98

11. The total surface area of a cube is 486 cm².

    Find the length of a side of the cube.

    A. 9 cm

    B. 22 cm

    C. 64 cm

    D. 81 cm

12. In a sale, the price of a coat is reduced by 25%. The sale price is $120.

    Calculate the price of the coat before the sale.

    A. $96

    B. $160

    C. $200

    D. $260

13. In 2019 Naheed's annual income was $22 000. She spent $7260 on accommodation in 2019.

    Calculate the percentage of her income she spent on accommodation.

    A. 23%

    B. 33%

    C. 43%

    D. 53%

14. Johnny jogged around the track 16 times. Each lap is 400 meters.

    Which process could determine the total distance he jogged?

    A. add 16 and 400

    B. divide 400 by 16

    C. multiply 400 by 16

    D. subtract 16 from 400

15. A cylindrical metal disc is 3 cm thick and its diameter is 14 cm. Find its volume.

    A. 132 cm³

    B. 154 cm³

    C. 462 cm³

    D. 616 cm³

16. At a restaurant, the price of a buffet for an adult is $28 on weekdays and $35 on weekends.

    By how many percent is the price of the buffet cheaper for adults on weekdays than on weekends?
    A. 10%
    B. 20%
    C. 30%
    D. 40%

17. Find the integers that satisfy $-5 \leq 3x \leq 6$
    A. -1
    B. $-1, 0$
    C. $-1, 0, 1$
    D. $-1, 0, 1, 2$

18. A bag contains red balls and blue balls. The balls are in the ratio red : blue = 3 : 5.

    Write down the fraction of the balls that are red.

    A. $\dfrac{3}{8}$

    B. $\dfrac{5}{8}$

    C. $\dfrac{3}{5}$

    D. $\dfrac{5}{3}$

19. Nahyan spends a total of 75 hours per week at work and at the gym.

    He goes to the gym from 6:45a.m. to 8:45a.m., Monday through Friday.

    Which equation can be used to find t, the maximum number of hours Nahyan works at his job each week?
    A. $t= 75 - (5 \times 2)$
    B. $t= 75 + 5 + 2$
    C. $t= 75 - 2 + 2 + 2 + 2 + 2$
    D. $t= 5 \times 2 - 75$

20. Cats spend about 3/10 of their time awake grooming themselves.

    Which number is equivalent to 3/10?
    A. 3%
    B. 30%
    C. 33.3%
    D. 300%

21. The results of a survey are shown in the table below:

Favourite Fast Foods of 100 people	
Food	Number of people
Pizza	25
Pasta	15
Zinger Burger	10
Fries	50

How many degrees make up the section of a pie graph representing those who preferred pasta?

A. 25%

B. 45%

C. 54%

D. 72%

22. Which statement is not true about polygons?

A. A polygon is classified by the number of sides it has.

B. The sides of a polygon overlap.

C. A polygon is formed by 3 or more-line segments.

D. The sides of a polygon meet only at its endpoints.

23. Zara's bike tire has a radius of 8 inches.

Which equation is used to find the circumference of the tire in inches?

A. $C = \pi \cdot 4$

B. $C = \pi \cdot 16 \times 2$

C. $C = \pi \cdot 16$

D. $C = \pi \cdot 8$

24. Mrs. Adam paints sea shells. She paints 30 shells in 80 minutes.

How long will it take her to paint 90 shells if she continues painting at the same rate?

A. 18 minutes

B. 27 minutes

C. 150 minutes

D. 240 minutes