



UNICUS
OLYMPIADS

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Sample Paper



Class 4

Unicus Global Mathematics Olympiad (UGMO)

Time: 60 minutes

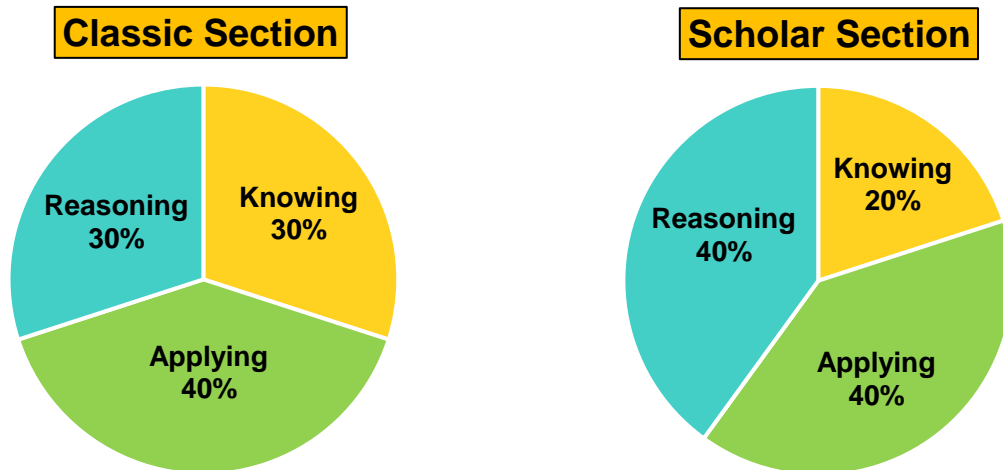
Pattern and Marking Scheme			
Section	Total Questions	Marks per Question	Total Marks
Classic Section	30	1	30
Scholar Section	15	2	30
Grand Total	45		60

Unicus Global Mathematics Olympiad (UGMO)

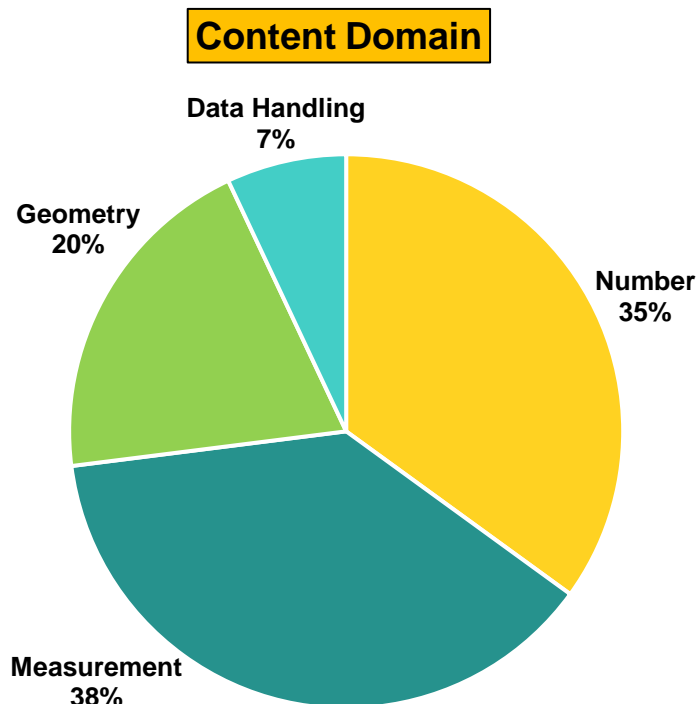
The **Unicus Global Olympiad** is organised around two dimensions:

1. Content dimension, specifying the subject matter domains to be assessed
2. Cognitive dimension, specifying the thinking processes to be assessed

Target percentages of the question paper devoted to cognitive domains



Target percentages of the question paper devoted to content domains



For more details, visit <https://www.unicusolympiads.com/>.

Classic Section (Each Question is 1 Mark)

Cognitive Domain: Knowing	Content Domain: Number
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1. Which of the following shows all the factors of 42?

- a. **1, 2, 3, 6, 7, 21, 42**
- b. **1, 2, 3, 6, 7, 14, 42**
- c. **1, 2, 3, 6, 21, 42**
- d. **1, 2, 3, 6, 7, 14, 21, 42**

Cognitive Domain: Applying	Content Domain: Number
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2. What will be the difference between the place values of digit 7 in the numbers 761124 and 157648?

- a. **69300**
- b. **69930**
- c. **693000**
- d. **699300**

Cognitive Domain: Reasoning	Content Domain: Number
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3. Here are some cards given to George for forming the greatest 5-digit even number without repeating any digits. Help him form the number.






- a. **95236**
- b. **95326**
- c. **96523**
- d. **96532**

Cognitive Domain: Reasoning	Content Domain: Number
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4. If  = 

 =  and

 =  then  = ?



Cognitive Domain: Knowing	Content Domain: Number
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5. Fill in the blank:

$$78 - \underline{\hspace{2cm}} = 28 + 35$$

a. **12**

b. **15**

c. **17**

d. **18**

Cognitive Domain: Applying	Content Domain: Number
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6. Let 'N' be the number of people sitting on a bus. At a stop, 8 people get off the bus. Which of these expressions would represent this fact?

a. **$N - 8$**

b. **$N \div 8$**

c. **$N \times 8$**

d. **$N + 8$**

Cognitive Domain: Knowing

Content Domain: Number

7. Identify the smallest fraction.

a. $\frac{1}{4}$

b. $\frac{1}{2}$

c. $\frac{3}{4}$

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

Cognitive Domain: Applying

Content Domain: Number

8. Sally walked $1\frac{5}{6}$ km in the morning and $1\frac{2}{3}$ km in the evening. How much total distance did she walk?

a. $2\frac{1}{6}$ km

b. $2\frac{1}{2}$ km

c. $3\frac{1}{2}$ km

d. $2\frac{1}{3}$ km

Cognitive Domain: Reasoning

Content Domain: Number

9. In a car race, car A has covered a distance of 2.8 km and car B has covered three-fourths of the distance covered by car A. How much more distance has car A covered than car B?

a. **0.6 km**

b. **0.7 km**

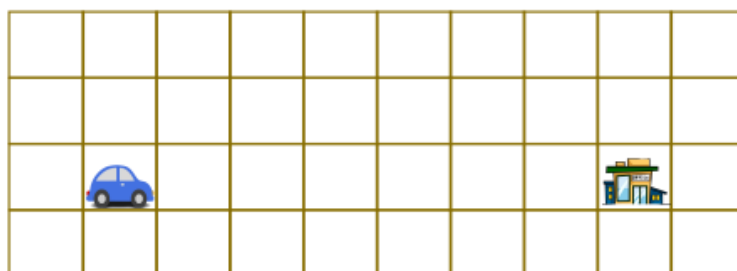
c. **1.4 km**

d. **2.1 km**

Cognitive Domain: Reasoning

Content Domain: Number

10. In the given picture, each square denotes 1.2 km. If the car moves from its current position in a straight line to the office, how much total distance did the car travel?



 : Office

- a. **6.4 km** b. **6.8 km**
c. **7.2 km** d. **7.4 km**

Cognitive Domain: Knowing

Content Domain: Time and Money

11. Peter's mom takes 7 minutes to iron a shirt. How much time will he take to iron 17 shirts?
- a. 1 hour 33 minutes b. 1 hour 49 minutes
c. 1 hour 59 minutes d. 2 hours

Cognitive Domain: Knowing

Content Domain: Time and Money

12. Patrick attends school from 7:30 a.m. to 1:30 p.m. in a day. How many hours will he attend school in a week considering he has holidays on Saturday and Sunday?
- a. **25 hours** b. **30 hours**
c. **35 hours** d. **40 hours**

Cognitive Domain: Applying

Content Domain: Time and Money

13. At a speed of 90 km/hr, how much time will a car take to travel a distance of 60 km?
- a. $\frac{1}{3}$ hour b. $\frac{6}{7}$ hour
c. $\frac{5}{6}$ hour d. $\frac{2}{3}$ hour

Cognitive Domain: Reasoning

Content Domain: Time and Money

14. A motorist travels a distance of 16 km from A to B at 8 km/hr and takes 3 hours to travel the remaining distance from B to C travelling at the same speed. What is the total journey travelled by him?



a. **20 km**

b. **24 km**

c. **40 km**

d. **46 km**

Cognitive Domain: Applying

Content Domain: Measurement

15. In the classroom, the teacher made the following statement. Assist the students with the 15°C to Fahrenheit conversion.

"Multiply the Celsius temperature by $\frac{9}{5}$ by and add 32 to it to get the temperature in Fahrenheit scale."

a. **49°F**

b. **59°F**

c. **63°F**

d. **73°F**

Cognitive Domain: Knowing

Content Domain: Geometry

16. The temperature of the coffee is 171°F . Mr. Green drinks it only after the temperature reduces to 14°F less than one-third of the current temperature. At what temperature will he drink the coffee?

a. **43°F**

b. **57°F**

c. **61°F**

d. **71°F**

Cognitive Domain: Applying

Content Domain: Measurement

17. Fill in the blank:

The length of the rope is ___ cm.



1.2 m

a. **1.2**

b. **12**

c. **120**

d. **1200**

Cognitive Domain: Knowing

Content Domain: Geometry

18. At a birthday party, orange juice is served in glasses with a capacity of 175 mL. If 47 glasses of orange juice were served at the party, how much juice would be served?

a. **7 L 625 mL**

b. **7 L 825 mL**

c. **8 L 225 mL**

d. **8 L 425 mL**

Cognitive Domain: Reasoning

Content Domain: Measurement

19. A car has travelled 360 km from Fremont in 6 hours. Its destination is Oakland. It travels at the same speed throughout the journey. What is the distance it has to cover from Fremont to Oakland if it covers the entire journey in 9 hours?



a. **180 km**

b. **196 km**

c. **208 km**

d. **224 km**

Cognitive Domain: Reasoning

Content Domain: Measurement

20. Four children describe the amount of milk they drank in a day. Who drank the maximum?



a. Susan
c. Julian

b. Kaira
d. Patrick

Cognitive Domain: Knowing

Content Domain: Geometry

21. Find the area of a rectangular park of length 12 m and breadth 4 m less than the length.

a. **84 sq. m.**

b. **96 sq. m.**

c. **98 sq. m.**

d. **108 sq. m.**

Cognitive Domain: Applying

Content Domain: Geometry

22. A picture frame has a length of 24 cm and a breadth is one-third of the length. What will be the perimeter of the frame?

a. **8 cm**

b. **16 cm**

c. **32 cm**

d. **64 cm**

Cognitive Domain: Reasoning

Content Domain: Geometry

23. A garden pathway is 1 metre wide and surrounds a rectangular garden that is 10 m long and 6 m wide. What is the area of the pathway?

a. **36 m^2**

b. **72 m^2**

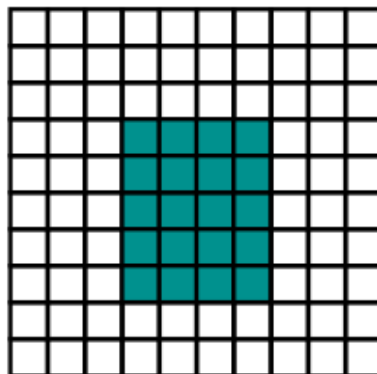
c. **96 m^2**

d. **60 m^2**

Cognitive Domain: Reasoning

Content Domain: Geometry

24. If the area of each square is 1 sq. cm., what is the area of the pink-shaded figure?



- a. **20 sq. cm** b. **24 sq. cm**
c. **28 sq. cm** d. **32 sq. cm**
-

Cognitive Domain: Knowing

Content Domain: Geometry

25. Which of the following makes a straight angle?

- a. **$\angle 45^\circ + \angle 45^\circ$** b. **$\angle 45^\circ + \angle 60^\circ$**
c. **$\angle 90^\circ + \angle 90^\circ$** d. **$\angle 60^\circ + \angle 60^\circ$**
-

Cognitive Domain: Knowing

Content Domain: Geometry

26. Identify the quadrilateral from the given hints.

I have two pairs of parallel sides.

My opposite sides are equal.

- a. **Parallelogram** b. **Square**
c. **Rectangle** d. **Semi-circle**
-

Cognitive Domain: Knowing

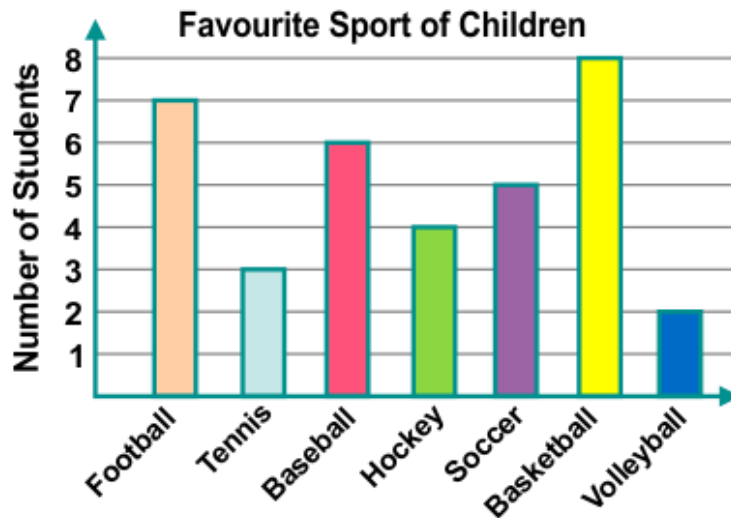
Content Domain: Geometry

27. Which of the following 3D shapes has two flat surfaces and one curved surface?

- a. **Cylinder** b. **Cone**
c. **Cuboid** d. **Sphere**
-

Directions (28-30): Study the given bar graph and answer the following questions:

The bar graph shows the survey results of the different sports chosen by children.



Cognitive Domain: Applying

Content Domain: Data Handling

28. The bar graph shows the survey results of the different sports chosen by children. Which was the second most popular sport among the children?

- a. **Football**
- b. **Soccer**
- c. **Baseball**
- d. **Basketball**

Cognitive Domain: Applying

Content Domain: Data Handling

29. What is the difference in the number of students between the most and least favourite sport?

- a. **2**
- b. **4**
- c. **6**
- d. **8**

Cognitive Domain: Applying

Content Domain: Data Handling

30. Which sport is liked by half the number of students who chose the most popular sport?

- a. **Tennis**
- b. **Hockey**
- c. **Volleyball**
- d. **Soccer**

Scholar Section (Each Question is 2 Marks)

Cognitive Domain: Knowing	Content Domain: Number
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31. Which of the following shows the product of 345 and 27?

- a. 665 more than 19000
c. 556 more than 20000

- b. 665 less than 19000
d. 556 less than 20000

Cognitive Domain: Applying	Content Domain: Number
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32. The population of a village is nineteen thousand two hundred and seventy-six. The population of a city is 5397 less than twelve times more than the population of the village. What is the population of the city?

- a. **231312**
c. **236709**

- b. **225915**
d. **237715**

Cognitive Domain: Applying	Content Domain: Number
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33. Find the value of x:

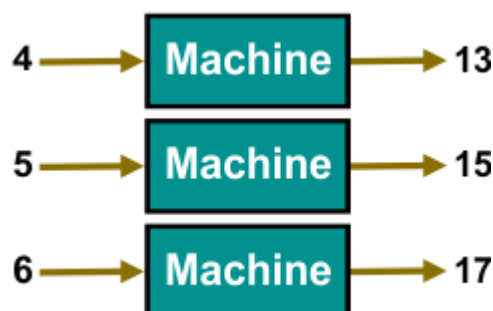
$$64 - 23 + x = 28 + 17$$

- a. **2**
c. **4**

- b. **3**
d. **6**

Cognitive Domain: Reasoning	Content Domain: Number
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34. The given picture shows the numbers input in a machine and their respective outputs. Identify the rule that the machine is following. What will be the output when the input is 7?



a. **18**b. **19**c. **20**d. **21****Cognitive Domain: Applying****Content Domain: Number**

35. From a packet of 2 kg of flour 0.78 kg has been used. How much amount of flour is left in the packet?

a. **1.22 kg**b. **1.23 kg**c. **1.32 kg**d. **1.34 kg****Cognitive Domain: Reasoning****Content Domain: Number**

36. The given table shows marks scored by four students in a test. Who scored the least and how much?

Student	Marks
Jane	$\frac{4}{9}$ times of 72
Allan	0.7 times of Jane
Lisa	0.64 times of Allan
Peter	$\frac{5}{12}$ times of Allan

a. **Peter, 14.36**b. **Lisa, 9.33**c. **Lisa, 14.36**d. **Peter, 9.33****Cognitive Domain: Applying****Content Domain: Time and Money**

37. Sarah spent 104 minutes doing his homework. If she started doing her homework at 7:30 p.m., at what time did she finish?

a. **9:08 p.m.**b. **9:14 p.m.**c. **9:16 p.m.**d. **9:24 p.m.**

Cognitive Domain: Reasoning**Content Domain: Time and Money**

38. The given table shows the arrival and departure times of a train at different stations. What is the time taken by the train from arriving at station B to departing from station C?

Source	Destination	Arrival time at destination	Departure time at destination
A	B	10:40 a.m.	10:55 a.m.
B	C	11:55 a.m.	12:20 p.m.

- a. 1 hour 30 minutes
 b. 1 hour 40 minutes
 c. 1 hour 50 minutes
 d. 2 hours 10 minutes

Cognitive Domain: Knowing**Content Domain: Measurement**

39. The temperature at the mountain pass is -23°C and the temperature at the valley is 2°C . How much warmer is the valley than the mountain pass?

- a. 17°C
 b. 19°C
 c. 21°C
 d. 25°C

Cognitive Domain: Applying**Content Domain: Measurement**

40. The chef asks Sarah to set the temperature of the oven to six-sevenths of the current temperature. If the current temperature of the oven is 329°F , at what temperature should she set the oven?

- a. 278°C
 b. 282°C
 c. 292°C
 d. 312°C

Cognitive Domain: Reasoning**Content Domain: Measurement**

41. A mountain peak has a height of 6250 m and its base is at an elevation of 1200 m. The temperature at the base is -2°C and drops at a rate of 1°C every 100 m. What is the temperature at the top?

- a. -47.5°C
 b. -48.5°C
 c. -50.5°C
 d. -52.5°C

Cognitive Domain: Applying

Content Domain: Measurement

42. Tom weighs seven-eighths the weight of John. If John weighs 48 kg, what will be the total weight of Tom and John altogether?

a. **42 kg**

b. **46 kg**

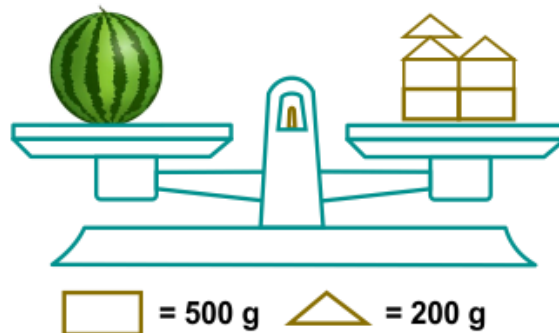
c. **80 kg**

d. **90 kg**

Cognitive Domain: Reasoning

Content Domain: Measurement

43. The weight of a melon is two-fifths the weight of the watermelon in the picture. Find the weight of the melon.



a. **520 g**

b. **640 g**

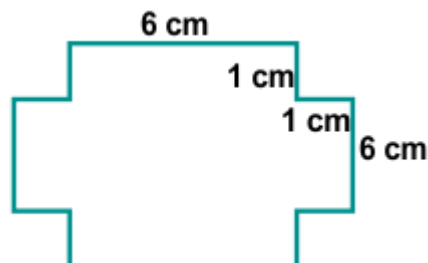
c. **1 kg 40 g**

d. **1 kg 400 g**

Cognitive Domain: Knowing

Content Domain: Geometry

44. Find the perimeter.



a. **24 cm**

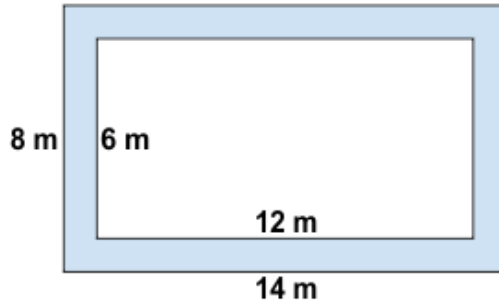
b. **26 cm**

c. **28 cm**

d. **32 cm**

Cognitive Domain: Applying	Content Domain: Geometry
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45. A rectangular park is paved all along its border as shown in the picture. Find the area of the paved path.



- a. 36 sq. m
- b. 40 sq. m
- c. 72 sq. m
- d. 112 sq. m

Answer Key

1.	d	2.	c	3.	d	4.	c	5.	b	6.	a	7.	a
8.	c	9.	b	10.	c	11.	c	12.	b	13.	d	14.	c
15.	b	16.	a	17.	c	18.	c	19.	a	20.	b	21.	b
22.	d	23.	a	24.	b	25.	c	26.	a	27.	a	28.	a
29.	c	30.	b	31.	a	32.	b	33.	c	34.	b	35.	a
36.	d	37.	b	38.	b	39.	d	40.	b	41.	d	42.	d
43.	c	44.	d	45.	b								