

# NATIONAL MATHEMATICS CONTEST JUNIORS (GRADE 5 & 6)



INTERNATIONAL  
**CATS CONTESTS**  
COMPETENCE & APTITUDE TESTING SERVICES

# NATIONAL MATHEMATICS CONTEST

## JUNIORS (GRADE 5 & 6)

**TIME ALLOWED : 90 MINUTES**

**MAXIMUM MARKS : 90**

**TOTAL QUESTIONS : 30 MCQS**

### INSTRUCTIONS

1. DON'T START ATTEMPTING THE PAPER UNTIL INSTRUCTED BY THE INVIGILATORS.
2. INSTRUCTIONS FROM THE EXAMINATION INVIGILATORS MUST BE CARRIED OUT PROMPTLY.
3. WRITE YOUR NAME, FATHER NAME, SCHOOL NAME, ADDRESS ETC AT THE BUBBLE SHEET ONLY.
4. RECORD ALL ANSWERS ON THE BUBBLE SHEET ONLY. SELECT BEST ANSWER FROM THE FOUR GIVEN OPTIONS AND MARK ONLY ONE OPTION IN EACH QUESTION.
5. USE BLUE / BLACK INK TO FILL UP THE CIRCLES FOR YOUR ANSWERS ON THE BUBBLE SHEET. USE OF LEAD PENCIL IS NOT ALLOWED.
6. USE OF ANY HELPING MATERIAL INCLUDING CELL PHONES AND ELECTRONIC DEVICES IS STRICTLY PROHIBITED.
7. EVERY CORRECT ANSWER EARNS THREE POINTS. THERE WOULD BE NEGATIVE MARKING. ONE POINT WOULD BE DEDUCTED FOR EVERY INCORRECT ANSWER.
8. CANDIDATES MAY NOT LEAVE THE EXAMINATION ROOM UNSCORTED FOR ANY REASON, AND THIS INCLUDES USING THE WASHROOM.
9. THERE ARE SIX CATEGORIES OF THE CONTEST AS UNDER:
  - A. TODDLERS (GRADE 1 & 2)
  - B. KIDS (GRADE 3 & 4)
  - C. JUNIORS (GRADE 5 & 6)
  - D. JUVENILES (GRADE 7 & 8)
  - E. ADOLESCENTS (GRADE 9 & 10 / O-LEVELS)
  - F. SENIORS (GRADE 11 & 12 / A-LEVELS)
10. ONLY REGISTERED STUDENTS CAN PARTICIPATE IN THE CONTEST.
11. NO CANDIDATE SHALL TAKE OUT OF THE HALL ANY ANSWER BOOK(S) OR PART OF AN ANSWER BOOK, WHETHER USED OR UNUSED, OR OTHER SUPPLIED MATERIAL.
12. IF A PARTICIPANT DOES NOT UNDERSTAND A WORD OR PHRASE ON THE EXAM PAPER, NEITHER EXAMINER NOR INVIGILATOR IS PERMITTED TO ANSWER.
13. FOR INFORMATION ABOUT UPCOMING CONTESTS OR PROVIDING VALUABLE FEEDBACK, PLEASE VISIT [WWW.CATSCONTESTS.ORG](http://WWW.CATSCONTESTS.ORG)
14. ANY ACADEMIC MISCONDUCT OR MALPRACTICE MUST BE REPORTED TO INTERNATIONAL CATS CONTESTS AT [INFO@CATSCONTESTS.ORG](mailto:INFO@CATSCONTESTS.ORG)

**Q1.** What would result in the largest number?

**A** 905 divided by 3

**C** 905 divided by 4

**B** 905 divided by 5

**D** 905 divided by 905

**Q2.** Which is the largest number in the picture?

$\frac{1}{16}$					
$\frac{1}{8}$	$\frac{4}{16}$				
$\frac{1}{4}$	$\frac{3}{8}$	$\frac{6}{16}$			
$\frac{1}{2}$	$\frac{2}{4}$	$\frac{3}{8}$	$\frac{4}{16}$		
1	$\frac{1}{2}$	$\frac{1}{4}$	$\frac{1}{8}$	$\frac{1}{16}$	

**A** 1

**B**  $\frac{3}{8}$

**C**  $\frac{2}{4}$

**D**  $\frac{6}{16}$

**Q3.** Kelvin bought 4 packs of white T-shirts and 5 packs of blue T-shirts for his basketball team. The white T-shirts come in packs of 8, and the blue T-shirts come in packs of 4. How many T-shirts did Darren buy in all?

**A** 12

**B** 52

**C** 56

**D** None of these

**Q4.** Calculate:  $4.5 \times (3.5 - 2.5) + 1.5$

**A** 6

**B** 5

**C** 5.5

**D** 6.5

**Q5.** A restaurant owner washed 38 kilograms of vegetables, some broccoli and some corn. The broccoli came in 9-kilogram bags and the corn came in 2-kilogram bags. The owner washed 5 bags of vegetables in all. How many bags of each kind did he wash?

**A** 4 Bags of broccoli, 1 Bags of corn

**C** 3 Bags of broccoli, 2 Bags of corn

**B** 1 Bags of broccoli, 4 Bags of corn

**D** 3 Bags of broccoli, 3 Bags of corn

**Q6.** *The grading scheme for an examination is described below:*  
 (1) *If the number of correct answer is  $N$  which is less than 6, then Total Score =  $N \times 12$ .*  
 (2) *If the number of correct answers in  $N$  which is more than or equal to 6, then Total Score =  $N \times 8 + 20$ .*  
 Compute the total score for the examination paper below:

<b>Problems</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>
<b>Student Answers</b>	A	A	B	B	C	B	D	D	A	A
<b>Correct Answers</b>	A	C	B	D	C	B	D	B	A	A

**A** 56

**B** 66

**C** 76

**D** 86

**Q7.** On a modern art painting, there are 4 green dots in the first row, 6 green dots in the second row, 9 green dots in the third row, 13 green dots in the fourth row, and 18 green dots in the fifth row. If this pattern continues, how many green dots will there be in the sixth row?

**A** 20

**B** 24

**C** 26

**D** 28

**Q8.** Four-eighths of the 16 books on a shelf are about Mathematics. How many Mathematics books are on the shelf?

**A** 8

**B** 12

**C** 14

**D** 16

**Q9.** Kane went for a hike on Wednesday at camp. The hike took 2 hours and 45 minutes. As soon as he got back, Kane played volleyball for 1 hour and 45 minutes. It was 9:45 A.M. when Damon finished playing volleyball. What time did Kane start his hike?

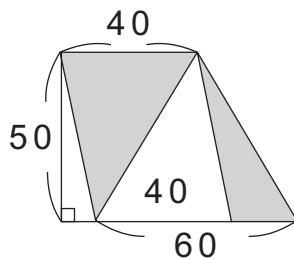
**A** 5:15 A.M.

**B** 8:00 A.M.

**C** 8:45 A.M.

**D** 9:50 A.M.

**Q10.** What is the area of the shaded region in the figure ?



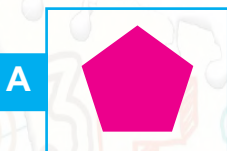
**A** 1000

**B** 1500

**C** 2000

**D** 2500

**Q11.** Which shape has only one pair of parallel sides?



**Q12.** How much faster does the seconds hand move compared with the hour hand?

- A** 240 times      **B** 600 times      **C** 3600 times      **D** 720 times

**Q13.** We want to buy 120 Kilograms of potatoes. Which is the better purchase?

- A** 5-kilogram bags of potatoes for \$5.05 each      **C** 4-kilogram bags of potatoes for \$4.05 each  
**B** 6-kilogram bags of potatoes for \$6.05 each      **D** There is no difference

**Q14.** Among the four groups of figures below, which group cannot be assembled into a rectangle or a square ?

**A**

2 pieces    2 pieces    2 pieces

**B**

6 pieces

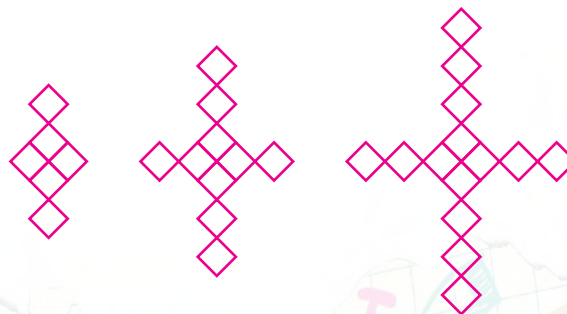
**C**

4 pieces    2 pieces

**D**

4 pieces    2 pieces

**Q15.** Observe the arrangement of the three figures on the right. If one continues drawing figures following this pattern, how many does the 8th figure has?



- A** 30      **B** 32      **C** 34      **D** 38

**Q16.** When Kim's grandfather was 45, his age was 9 times Kim's father's age. Kim's father is 32 this year and his age is 8 times Kim's age. What is the difference between Kim's age and her grandfather's age this year?

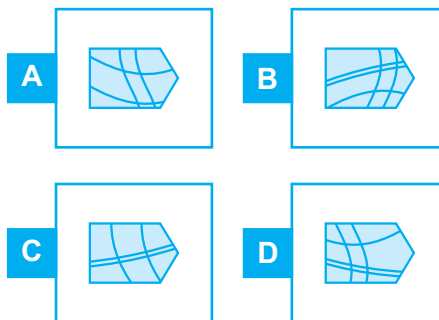
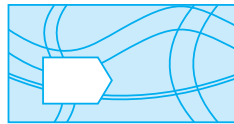
**A** 67

**B** 68

**C** 69

**D** 70

**Q17.** Find the missing part



**Q18.** The fourth day of a month is a Monday. The last day of the month cannot be a Wednesday, nor a Tuesday, nor a

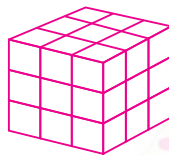
**A** Friday

**B** Saturday

**C** Sunday

**D** Monday

**Q19.** A large wooden cube is painted and then divided into 27 smaller cubes (see diagram). How many of these small cubes have only one face that is covered with paint?



**A** 7

**B** 6

**C** 5

**D** 8

**Q20.** Mathew had a score of 6 out of 10 on his first test and 10 out of 10 on his second test. What was his average for the two tests ?

**A** 80%

**B** 84%

**C** 82%

**D** 75%

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**Q21.** Matusalem has a weird watch. At 5:56, his watch, which was running 4 times fast, showed a time of 6:00. His watch has gained an extra 2 minutes every hour since 5:56. What is the right time, if his watch now shows a time of 10:39?

**A** 10:24

**B** 10:28

**C** 10:25

**D** 10:26

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**Q22.** A biology class examined some flowers in a local meadow. They saw 20 flowers, of which 75% were perennials. How many perennial flowers did the students see?

**A** 5

**B** 15

**C** 20

**D** 25

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**Q23.** Find the standard decimal form of:  
 $9 \times 1 + 2 \times 0.1 + 9 \times 0.01$

**A** 9.29

**B** 9.14

**C** 0.929

**D** 9.17



**Q24.**  $-99 + 88 - 77 + 66 - 55 + 44 - 33 + 22 - 11 + 0 + 11 \times 5$   
What is the answer?

**A** It depends

**B** Negative

**C** Positive

**D** Equal zero

**Q25.** The table below shows the pattern on how a library arranges its bookshelves. Following this pattern, Bookshelf Number 106 is located in which row and which column?

	Col	Col	Col	Col	Col	Col
	1	2	3	4	5	6
Row 1	1	3	5	6	4	2
Row 2	7	9	11	12	10	8
Row 3	13	15	17	18	16	14

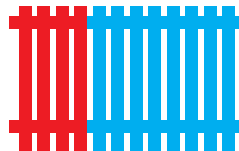
**A** Row 17, Column 4

**C** Row 18, Column 4

**B** Row 17, Column 5

**D** Row 18, Column 5

**Q26.** Alex painted a fence. He completed  $\frac{3}{4}$  of the work on Monday. On Tuesday, he was tired and completed only  $\frac{1}{5}$  of the fence. What portion on the fence did he paint the last day, on Wednesday?



**A**  $\frac{1}{20}$

**B**  $\frac{1}{19}$

**C**  $\frac{1}{9}$

**D** Nothing

**Q27.** Which property of multiplication is shown?  
 $9 \times (8 \times 6) = (9 \times 8) \times 6$

**A** Associative

**B** Commutative

**C** Distributive

**D** Identity

**Q28.** A number multiplied by 6 gives 48. When the same number is tripled, the result is

**A** 15

**B** 21

**C** 24

**D** 27

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**Q29.** In London 2012, the USA won 46 gold, 28 silver and 29 bronze medals. Great Britain was third with 29 gold, 17 silver and 19 bronze. How many more medals did the USA win compared to Great Britain?

**A** 36 medals

**B** 37 medals

**C** 38 medals

**D** 39 medals

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**Q30.** There are three separate large red boxes, and inside each of these small boxes, there is one smaller green box. How many boxes are there altogether?

**A** 9

**B** 12

**C** 15

**D** 18

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