



## CREST Mental Maths Olympiad (CMMO)

### Previous Year Paper

# Class 8

**Time Allowed: 60 minutes**

**Maximum Marks: 120**

- There are a total of **100 questions** in this booklet comprising **2 sections** namely the **Basique and Avance** consisting of **80 questions (1 mark each) & 20 questions (2 marks each)**, respectively.
- There is **only ONE correct option** to a given question.
- No candidate is allowed to carry any textual material, printed or written, bits of paper, any electronic device, etc. inside the examination hall.
- The use of unfair means may result in the cancellation of the exam. Any such instances may be reported at **+91-98182-94134** or **info@crestolympiads.com**

**DO NOT OPEN THIS BOOKLET UNTIL ASKED TO DO SO**

**FILL IN THE DETAILS**

Candidate Name: \_\_\_\_\_

Class: \_\_\_\_\_ Section: \_\_\_\_\_

CREST ID: \_\_\_\_\_

## Basique (Each Question is 1 Mark)

- Solve:  $7^2 + 8^2 - 11^2$ 
  - 12
  - 7
  - 8
  - 5
- What is the square root of 1156?
  - 32
  - 34
  - 36
  - 38
- Find the cube root of 1728?
  - 8
  - 9
  - 11
  - 12
- If the ratio of three numbers is 2 : 3 : 5 and their product is 2700, what is the smallest of the three numbers?
  - 180
  - 270
  - 450
  - 530
- A clothing store has a total of 250 shirts in stock. If they sold 60% of the shirts, how many shirts are still left in the store?
  - 60
  - 08
  - 100
  - 120
- What will come in place of question mark (?) in the number series?  
1, 9, 25, 49, 81, ?
  - 99
  - 121
  - 144
  - 169
- Sofia got 80, 85, 90, 75, and 70 marks in her five subjects. What is her average marks?
  - 80 marks
  - 85 marks
  - 90 marks
  - 95 marks
- A train travels at a speed of 80 km/h for 2 hours and then at a speed of 60 km/h for the next 3 hours. What is the average speed of the train for the entire journey?
  - 52 km/h
  - 58 km/h
  - 62 km/h
  - 68 km/h



18. Find the value:

$$\frac{x}{2} + \frac{x}{3} + \frac{x}{4}$$

a.  $\frac{17x}{12}$

b.  $\frac{17x}{8}$

c.  $\frac{13x}{8}$

d.  $\frac{13x}{12}$

19. Simplify the expression:

$$(4x - 3y) - (2x + 5y)$$

a.  $2x - 8y$

b.  $3x - 7y$

c.  $2y - 3x$

d.  $3y - 7x$

20. If  $2x + 9 = 47$ , Find x:

a. 16

b. 14

c. 17

d. 19

21. Umex has three boxes of different fruits. A weighs 5 kg more than box B and box weighs 10 kg more than box B. The total weight of three boxes is 48 kg. How many kg does box A weigh?

a. 8 kg

b. 4 kg

c. 16 kg

d. 11 kg

22. Find the value of x:

$$\frac{3}{4x - 5} = \frac{7}{2x + 3}$$

a. 3

b. 4

c. 5

d. 2

23. Find the square of 24.

a. 647

b. 625

c. 336

d. 576

24. How much is  $25^2 - 23^2$ ?

a. 96

b. 104

c. 89

d. 101

25. What will be the positive value of  $x$ , when  $4(x + 9)^2 = 676$ ?

- a. 6
- b. 8
- c. 12
- d. 4

26. Find:  $(\sqrt{4900} \div 10)^2 =$  \_\_\_\_\_.

- a. 70
- b. 4900
- c. 7
- d. 49

27. Find the value of:  $\sqrt{0.0081}$

- a. 0.09
- b. 0.9
- c. 0.009
- d. 0.03

28. What is  $113 - 103$ ?

- a. 221
- b. 281
- c. 381
- d. 331

29. What will be the next number in the given series?

64, 125, 216, \_\_\_\_\_

- a. 343
- b. 256
- c. 512
- d. 296

30. Find the value of  $x$ :

$$(216)^x = 6^8$$

- a. 4
- b. 5
- c. 7
- d. 9

31. Find the cube root of  $-1728$ .

- a. -14
- b. -11
- c. -13
- d. -12

32. Fill in the blank:

The minimum number of digits in the cube of a 4-digit number is \_\_\_\_\_.

- a. 9
- b. 8
- c. 10
- d. 11

33. Find the ratio of speed of a car and truck travelling 150 km in 3 hours and 120 km in 4 hours respectively.

- a. 4 : 5
- b. 7 : 3
- c. 5 : 3
- d. 3 : 7

34. What must be multiplied by each of the numbers 5, 9, 7, and 12 to obtain the proportion numbers?
- a. 3  
b. 5  
c. 4  
d. 7
35. If a box contains 12 items and 3 of them are defective, what percentage of the items are defective?
- a. 25%  
b. 18%  
c. 17%  
d. 20%
36. A shopkeeper bought a watch for \$600 and sold it for \$800. What is his profit or loss?
- a. \$100 loss  
b. \$200 profit  
c. \$200 loss  
d. \$100 profit
37. A man bought a bicycle for \$80 and sold it for \$100. What is the profit percentage?
- a. 25%  
b. 10%  
c. 55%  
d. 40%
38. Fill in the blank:  

$$\text{S.P.} = \frac{100 + \text{Profit}\%}{\text{_____}} \times \text{C.P.}$$
- a. Loss  
b. 100  
c. Profit%  
d. Profit
39. Anni has taken a loan of \$9000 at a simple interest rate of 12% per annum for 4 years. Calculate the simple interest she will have to pay.
- a. \$4,230  
b. \$4,106  
c. \$4,016  
d. \$4,320
40. If father is twice as old as his son and also 29 years older than his son. What is the age of father?
- a. 58 years  
b. 48 years  
c. 53 years  
d. 47 years
41. The age of father is 30 years more than that of his son. 5 years hence father's age will be thrice of his son's age, find son present ages.
- a. 12 years  
b. 10 years  
c. 15 years  
d. 40 years

42. 30 persons can complete a piece of work in 18 days. How many more persons needed if the work is to be completed in 12 days?
- a. 12  
b. 24  
c. 15  
d. 13
43. 16 persons need 56 kg of rice in 1 week. How much rice will be needed by 24 persons in four weeks?
- a. 336 kg  
b. 324 kg  
c. 431 kg  
d. 423 kg
44. The marks obtained by ten students in Mathematics in the annual examination are as follows: 76, 61, 87, 56, 42, 64, 73, 68, 50, 73. What is their average marks in mathematics?
- a. 45  
b. 35  
c. 65  
d. 64
45. James, Nike and Scott started a business in partnership by investing in the ratio of 6 : 5 : 8 respectively. At the end of the year, they earned a profit of \$83,600. What will be Scott's share?
- a. 4 : 5  
b. 3 : 1  
c. 2 : 7  
d. 5 : 3
46. Raxon started a business by investing \$45,000. 6 months later joined him with \$30,000. In what ratio should the earned profit be distributed at the end of the year?
- a. \$24,700  
b. \$39,290  
c. \$32,895  
d. \$35,200
47. Find the missing number:  
1, 3, 6, 10, 15, ?
- a. 21  
b. 19  
c. 17  
d. 20
48. Find the missing number:  
4, 9, 16, 25, ?
- a. 30  
b. 28  
c. 36  
d. 32

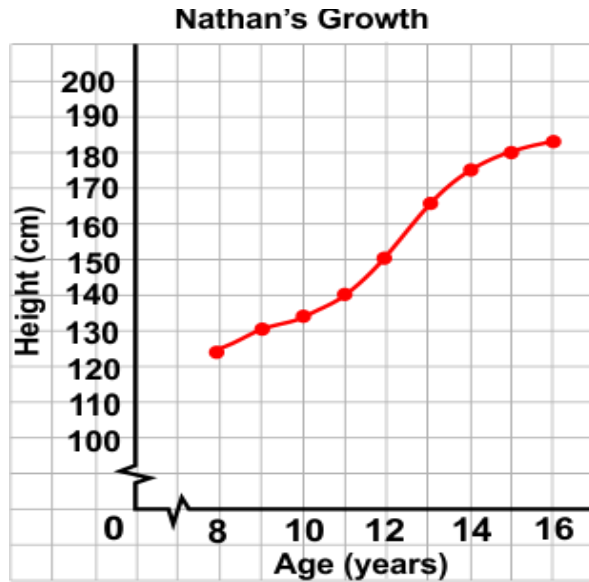






- a. 12
- b. 2
- c. 8
- d. 10

68. Given below is the line graph, which shows the height of Nathan during his ages. Answer the question based on a line graph. During which year did Nathan grow the most?



- a. 14 - 16
- b. 12 - 14
- c. 8 - 10
- d. 10 - 12

69. In the given rectangle, state the number of lines of symmetry.



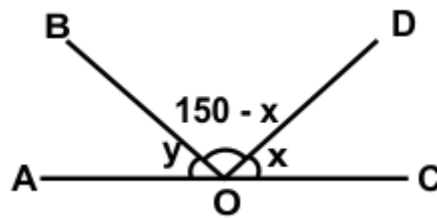
- a. 2
- b. 4
- c. 6
- d. 3

70. Find the number of lines of symmetry in the given figure:



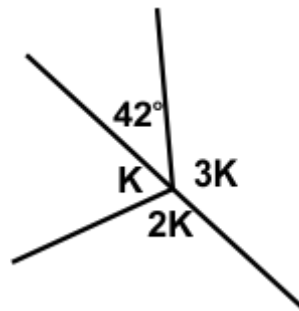
- a. 1
- b. 0
- c. 3
- d. 4

71. Find  $y$  in the given figure.



- a.  $60^\circ$
- b.  $30^\circ$
- c.  $45^\circ$
- d.  $55^\circ$

72. Find  $K$  in the given figure.



- a.  $32^\circ$
- b.  $65^\circ$
- c.  $47^\circ$
- d.  $53^\circ$

73. Evaluate:

$$(-1) \times (-2) \times (-3) \times (-4) \times (-5)$$

- a. -120
- b. -140
- c. -100
- d. 80

74. Determine the integer when it is divided by  $(-9)$ , the answer is 23.

- a. -198
- b. -207
- c. -177
- d. -210

75. Solve for "x":

$$69.69 - 51.54 + 73.64 = x + 32.42$$

- a. 56.14
- b. 57.12
- c. 59.37
- d. 52.42

76. Solve:  $\sqrt{52 \times 27 \div 6 + 26 - 4} = ?$

- a. 20
- b. 23
- c. 25
- d. 21

77. Solve:  $1\frac{1}{4} + 1\frac{5}{9} \times 1\frac{5}{8} \div 6\frac{1}{2} = ?$

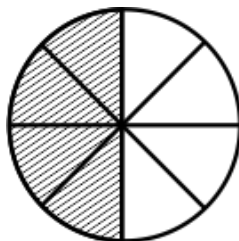
a.  $1\frac{23}{36}$

b.  $2\frac{3}{4}$

c.  $1\frac{21}{36}$

d.  $2\frac{24}{36}$

78. Express the figure given below as a rational number.



a.  $\frac{12}{8}$

b.  $\frac{4}{8}$

c.  $\frac{6}{8}$

d. 1

79. The sum of two rational numbers is  $-8$ . If one of the numbers is  $\frac{-21}{8}$ . Find the other number.

a.  $\frac{-43}{8}$

b.  $\frac{-25}{8}$

c.  $\frac{-37}{8}$

d.  $\frac{-53}{8}$

80. The product of two rational numbers is  $\frac{15}{11}$ . If one rational number is  $\frac{5}{9}$  then find the other.

a.  $\frac{29}{11}$

b.  $\frac{27}{11}$

c.  $\frac{24}{11}$

d.  $\frac{23}{11}$

### Avance (Each Question is 2 Marks)

81. A circular swimming pool has a circumference of 66 meters. What is the area of the pool?

a.  $574 \text{ m}^2$

b.  $592 \text{ m}^2$

c.  $601 \text{ m}^2$

d.  $616 \text{ m}^2$

82. Evaluate:  $(9^3 - 6^3) \times (3/5)^{-3}$

a. 2265

b. 2375

c. 2475

d. 2585

83. Simplify the expression:

$$(14x - 3y)(2x + 25y) - (-45x + 21y)$$

a.  $32x^2 - 84y^2 + 339xy - 11y$

b.  $28x^2 - 75y^2 + 389xy - 21y$

c.  $13x^2 - 44y^2 + 239xy - 51y$

d.  $23x^2 - 44y^2 + 321xy - 23y$

84. Find the value of x.

$$\frac{4+x}{3} + \frac{7}{4} = \frac{3-x}{2} + \frac{5}{4}$$

a.  $3/5$

b.  $-2/5$

c.  $-7/5$

d.  $8/5$

85. Find:  $\sqrt{16} \times \sqrt{49} \times \sqrt{121}$

a. 197

b. 308

c. 279

d. 348

86. Find:  $\sqrt{\sqrt[3]{343} \times \sqrt{784}} = \underline{\hspace{2cm}}$

a. 18

b. 14

c. 19

d. 12

87. The price of a computer is \$48,000. The sales tax charged was 4%, what is the amount to be paid by Mr. Jordan?

a. \$42,099

b. \$47,970

c. \$49,920

d. \$49,862

88. If a dress is priced at \$60 and is on sale for 20% off, how much will the dress cost?

a. \$26

b. \$32

c. \$34

d. \$48

89. If you deposit \$1000 in a savings account with an interest rate of 2% per year, how much will you have in the account after 2 years?

a. 1822.2

b. 1040.4

c. 1038.2

d. 103.82

90. Average of marks obtained by 105 candidates in a certain examination is 25. If the average marks of passed candidates is 29 and that of the failed candidates is 10, what is number of candidates who passed the examination?

a. 82.9

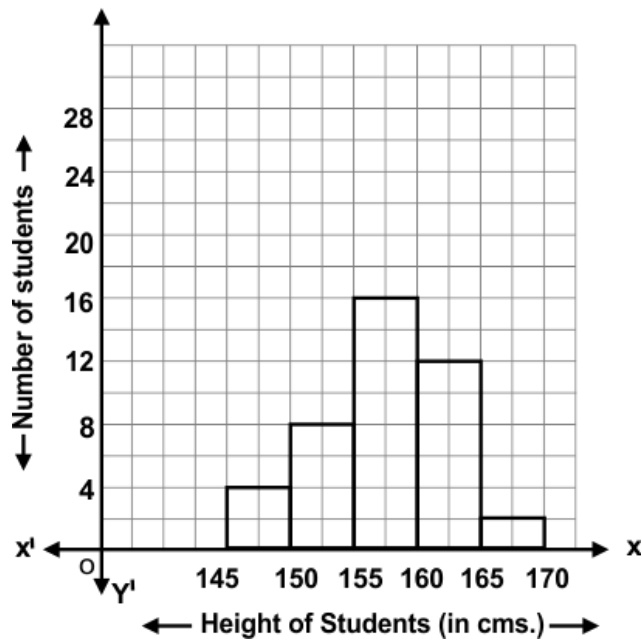
b. 80

c. 85

d. 88.34

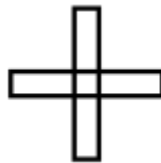


97. The given histogram shows the height of 42 students in the class. Study carefully and answer the questions:
- How many students are having height equal to 155 or less?
  - How many students have height equal to 160 or more?



- |                    |                    |
|--------------------|--------------------|
| a. i - 14, ii - 12 | b. i - 12, ii - 28 |
| c. i - 12, ii - 14 | d. i - 4, ii - 2   |

98. In the given figure, find the:
- Order of rotational symmetry.
  - Degree measure of the angle of rotation.



- |                     |                     |
|---------------------|---------------------|
| a. i - 4, ii - 90°  | b. i - 3, ii - 90°  |
| c. i - 3, ii - 360° | d. i - 4, ii - 360° |

