CREST Mathematics Olympiad (CMO)

Previous Year Paper

Class 6 (Set - A)

Time Allowed: 1 hour **Maximum Marks: 60**

- Additional **10 minutes** will be allotted to fill up information on the OMR Sheet, before the start of the exam.
- Fill in all the mandatory fields clearly on the OMR Sheet.
- There are a total of **50 questions** in this booklet comprising **2 sections** namely the **Practical Mathematics & Achievers' Section** consisting of **40 questions (1 mark each) & 10 questions (2 marks each)** respectively.
- There is no negative marking. The use of a calculator is not permitted.
- There is **only ONE correct option** to a given question.
- Use **HB Pencil or Blue / Black ballpoint pen only** for marking the correct choice of answers on the OMR Sheet.
- Rough work is to be done in the space provided in the test booklet. An extra plain sheet may be provided by the school for the rough work.
- The OMR Sheet is to be handed over to the invigilator at the end of the exam.
- 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: _____

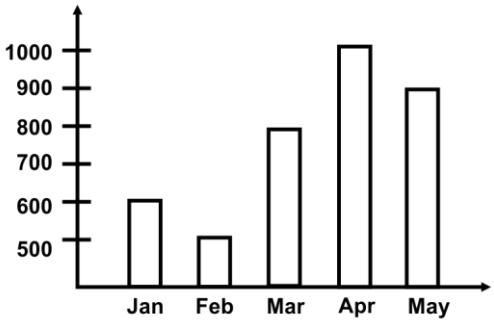
Practical Mathematics (Each Question is 1 Mark)

1. Fill in the blanks:
A triangular pyramid has ___ vertices, ____ faces and ____ edges.

a. 4, 6, 6
b. 4, 4, 6
c. 4, 6, 4
d. 6, 4, 6

2. The bar graph shows the sale of chocolates in 5 months from January to May:

In which month is the sale of chocolates 23.68% of the total sale of chocolates for the five months?



a. March
b. April
c. May
d. June

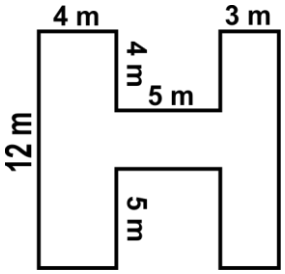
3. Represent the following statement algebraically:
A number x is increased by the sum of 4x and 9

a. x - 4x - 9
b. 4x + 9
c. x - (4x + 9)
d. x + (4x + 9)

4. Fill in the blanks:
Which of the following sets of numbers will hold the given number statement true?
_____ ÷ _____ × _____ = 102

a. 68, 4, 6
b. 72, 3, 5
c. 62, 3, 5
d. 46, 3, 8

5. Find the area of the given figure:



a. 84 m^2
b. 96 m^2
c. 99 m^2
d. 104 m^2

6. A grocery store has 5 eggs left over from yesterday's stock. If m eggs were delivered today to the shop by the supplier out of which 6 were rotten, how many unspoiled eggs are there for sale in the shop?

a. m - 6 + 5
b. m + 6 - 5
c. m - (6 + 5)
d. m + (6 - 5)

7. An alloy is prepared by mixing copper and nickel in the ratio of 3: 4. For 140 gm of the alloy, what is the weight of copper and nickel used, respectively?

a. 40 gm, 60 gm
b. 80 gm, 60 gm
c. 60 gm, 60 gm
d. 60 gm, 80 gm

8. Fill in the blanks:
1. A _____ has no end points.
2. A _____ has two end points.
3. A _____ has one end point.

a. line, line segment, ray
b. line segment, line, ray
c. line segment, ray, line
d. ray, line, line segment

9. Sophie spends 2/3 of her salary on house rent and 1/4 of the remaining on her daily expenditure. If at the end of the month, she is left with $1800, what is her salary?

a. $7,200 b. $7,600
c. $8,100 d. $8,500

10. Simplify:
6.125 - (-2.25) + (-3.125) - (- 1.25) + 2.575

a. 10.025 b. 9.075
c. 8.250 d. 8.050

11. Find the sum of the following decimal numbers up to 2 decimal places:
17.5 + 6.25 {2.5 - 4.25 (2.5 - 1.25) + 14.5}

a. 98.55 b. 94.05
c. 90.55 d. 73.05

12. A floor of a room is 5 m in length and 3.5 m in width. A square carpet of side 2.5 m is laid in the room. Find the area that is not carpeted:

a. 16.25 m^2 b. 11.25 m^2
c. 9.50 m^2 d. 6.25 m^2

13. Find the value of m in the given proportion:
167034 : 679 = m : 91

a. 22,386 b. 21,084
c. 20,475 d. 23,468

14. Find the value of x in the given proportion:
63 : x :: 27 : 198

a. 552 b. 462
c. 874 d. 388

15. On an order of 5 dozen boxes of a consumer product, a retailer receives an extra dozen free. This is equivalent to allowing him a discount of:

a. 15% b. $16\frac{1}{6}$ %
c. $16\frac{2}{3}$ % d. 20%

16. A total of 500 pieces of sweets is to be divided among Rex, Ahek and Kin respectively in the ratio of 3: 8: 14. How many pieces of sweets will Rex get?

a. 60 b. 80
c. 160 d. 280

17. The radius of a wheel is 28 cm. If the time taken by the wheel to cover a distance is 352 m by rolling is 4 min, then what is the time taken for one rotation of the wheel (in seconds)?

a. 1.2 seconds b. 2.4 seconds
c. 3.6 seconds d. 4.8 seconds

18. Find the product of the predecessor and successor of the largest 4-digit number formed from the digits 3, 0, 8, 2:

a. 69,222,939 b. 6,922,399
c. 96,222,399 d. 69,222,399

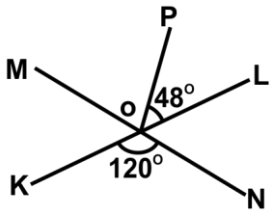
19. State the property used in the following statement:
661 x 93 + 661 x 7 = 661 (93 + 7)

a. Commutative property
b. Associative property
c. Distributive property
d. Closure property

20. Determine the number nearest to 100,000 which is exactly divisible by each of 8, 15 and 21 and it should be greater than 100,000 also:

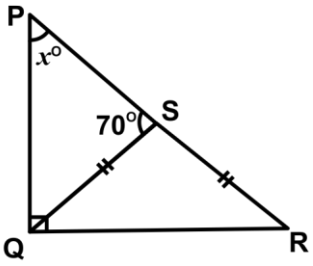
a. 100800 b. 100900
c. 100700 d. 100600

21. In the figure given below, MON and KOL are straight lines. Find the value of ∠POM:



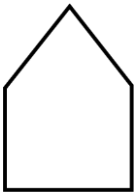
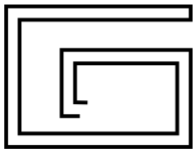
a. 72° b. 42°
c. 62° d. 32°

22. In the diagram given below, PQR is a right-angled triangle. PSR is a straight line.
Find the value of x:

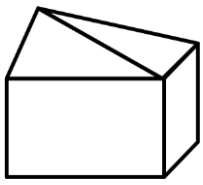


a. 35° b. 45°
c. 55° d. 65°

23. Which of the following is not a simple closed figure?

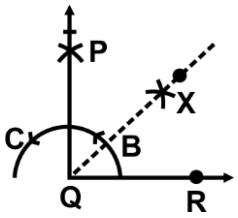
a. 
b. 
c. 
d. 

24. Which two solid shapes have been combined to form the solid shape given below?



a. Two pyramids
b. A pyramid and a triangular prism
c. A cuboid and a triangular prism
d. A cuboid and a pyramid

25. Look at the image given below and find the value of ∠XQR:



a. 30° b. 90°
c. 15° d. 45°

26. Two angles are complementary. One angle is 80% of the other angle. The two angles are:

a. 10°, 80° b. 20°, 70°
c. 30°, 60° d. 50°, 40°

27. The additive inverse of the sum of the integers -9853 and -3187 is:

a. 6666 b. 4031
c. 10340 d. 13040

28. 23, x, 31, 37, 41, y, 47
The list of numbers above shows prime numbers arranged in increasing order. The value of x + y is:

a. 42 b. 56
c. 72 d. 83

29. Add (-345) and 428 and then subtract 960 from the result. The answer will be:

a. -877 b. 877
c. -536 d. 536

30. Milo, Max, Luke and Mike want to know whose statement is true.
Milo: The product of two even numbers is always even.
Max: The sum of three odd numbers is even.
Mike: All prime numbers are odd.
Luke: Prime numbers do not have any factors.
Which of the following statements is true?

a. Milo
b. Max
c. Luke
d. Mike

31. Harry had been studying prime numbers. What is the total number of even prime numbers?

a. 1
b. 2
c. 3
d. 4

32. A constituency had 15,000 voters, and 60% of them cast ballots. By calculating the proportion of voters who did not cast a vote. Can you now determine how many people did not cast a vote?

a. 4000
b. 6000
c. 8000
d. 10000

33. Alexa frequently purchases books, reads them and then sells them. She spends $275 on a suspense novel, then sells it at a 15% loss. How much does she sell it for?

a. $233.75
b. $245
c. $234.23
d. $213.75

34. Which of the following statements are false?

i. A curve which begins and ends at the same point is called a closed curve.
ii. A set of points equidistant from a fixed point in a plane figure is called a circle.
iii. A set of points which is a part of the line with two endpoints is a line.

a. i and ii
b. iii only
c. i only
d. i and iii

35. When a clock's hour hand moved from 12 to 3, Alice was counting the right angles it made while watching the time. Calculate how many right angles a clock's hour hand will cover as it moves from 12 to 3.

a. 4
b. 3
c. 2
d. 1

36. Marlie jogs every day to maintain her physical fitness. How far does Marlie travel if she completes four rounds around a square area with a side of 60 metres?

a. 240 m
b. 450 m
c. 670 m
d. 960 m

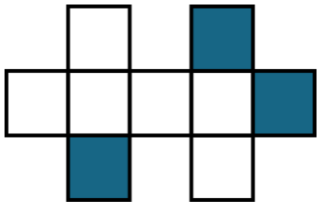
37. The rectangular space that Ruhi wishes to transform into a lovely garden will first need to be fenced. 0.7 km by 0.5 km constitutes a rectangular parcel of land. Four rows of wires are to be used to fence on each side. What is the required wire length?

a. 6.5 km
b. 9.6 km
c. 10.2 km
d. 11 km

38. Duke went to his Play Station to play a game where he was racing cars. That game's steering wheel is shaped like a triangle. In the chair with a square back, Duke was seated. How many symmetrical lines are there in the square?

a. 2
b. 3
c. 4
d. 5

39. Neo was looking at the image that is provided below in her workbook. How many minimum squares must be shaded in the depicted figure to achieve symmetry?



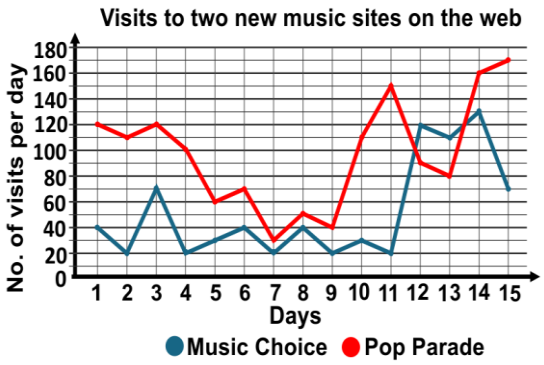
a. 6
b. 4
c. 3
d. 2

40. When Rex was playing with her blocks, she kept them stacked on top of one another and managed to balance them as indicated in the figure. How many symmetrical lines are present in the image?

a. 1 b. 2
c. 3 d. 4

Achievers' Section (Each Question is 2 Marks)

41. The given graph shows visits to two music sites on the web.
On which day is the difference between the number of visits to Music Choice and Pop Parade maximum?



a. Day 1 b. Day 10
c. Day 11 d. Day 15

42. Read the given statements carefully and choose the correct option:
i. A segment is a part of a circle enclosed by two radii and their intercepted arc.
ii. A line segment has no endpoints.
iii. Only one line can pass through a point.
iv. A ray is infinitely long

a. Only (iv) is true and others are false.
b. (i) and (iv) are true and (ii) and (iii) are false.
c. Only (iii) is false and others are true.
d. All are correct.

43. Using the given equivalent fractions, find the value of a x b - c:
8 (1/3) = a/3 = b/45 = c/90

a. 8,625 b. 1,775
c. 9,395 d. 6,255

44. The average of 2, 7, 6 and x is 5 and the average of 18, 1, 6, x and y is 10. What is the value of y?

a. 10 b. 30
c. 20 d. 5

45. Match the column A with column B:

	Column A		Column B
a.	$\sqrt[3]{(2^9 \times 3^{12})}$	i.	$2^6 \times 3^4$
b.	$\sqrt[2]{(2^{12} \times 3^8)}$	ii.	$2^4 \times 3^3$
c.	$\sqrt[3]{(2^{12} \times 3^9)}$	iii.	$2^4 \times 3^6$
d.	$\sqrt[2]{(2^8 \times 3^{12})}$	iv.	$2^3 \times 3^4$

a. a – iv, b – i, c – ii, d – iii
b. a – iv, b – ii, c – i, d – iii
c. a – iv, b – i, c – iii, d – ii
d. a – ii, b – i, c – iv, d – iii

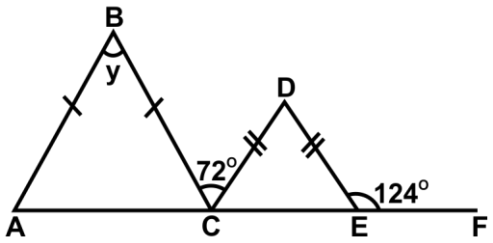
46. The ratio of the areas of two squares is 1: 4. If the area of the first square is 9 sq. units, then the area of the other square is _____ (in sq. units).

a. 16 b. 36
c. 64 d. 49

47. A student rides on a bicycle at 8 km/hour and reaches his school at 2.5 minutes late. The next day he increases the speed to 10 km/hr and reaches school 5 minutes early. How far is the school from the house?

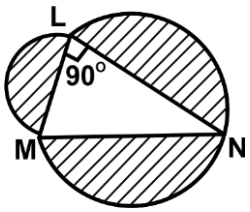
a. 7 km
b. 6 km
c. 5 km
d. 4.5 km

48. Look at the image given below. Triangles ABC and CDE are isosceles triangles. ACEF is a straight line. Find the value of y:



a. 52°
b. 58°
c. 68°
d. 76°

49. Look at the figure given below in which MN is a diameter and MN= x. What is the area of the shaded region?



a. $\pi x^2/2$
b. $\pi x^2/4$
c. πx^2
d. $4\pi x^2$

50. Find the value of:

i. 17.432 - 12.876 + 82.49 - 51.905
ii. 39.2186 + 23.543 - 82.432 + 90.625
iii. 69.3875 - 37.483 - 28.515 + 38.75

a. (i) - 42.645, (ii) - 80.1955, (iii) - 42.1395
b. (i) - 35.141, (ii) 80.1955, (iii) - 35.4325
c. (i) 42.645, (ii) 70946, (iii) - 35.4325
d. (i) 35.141, (ii) 70.9546, (iii) 42.1395

Answer Key

1.	b	2.	c	3.	d	4.	a	5.	c	6.	a	7.	d
8.	a	9.	a	10.	b	11.	c	12.	b	13.	a	14.	b
15.	c	16.	a	17.	a	18.	d	19.	c	20.	a	21.	a
22.	c	23.	d	24.	d	25.	d	26.	d	27.	d	28.	c
29.	a	30.	a	31.	a	32.	b	33.	a	34.	b	35.	d
36.	d	37.	b	38.	c	39.	d	40.	b	41.	c	42.	a
43.	a	44.	c	45.	a	46.	b	47.	c	48.	d	49.	b
50.	d												