



## CREST Mathematics Olympiad (CMO)

# Sample Paper

## Pattern and Marking Scheme

Grade	Topic/Section	No. of Questions	Marks per Question	Total Marks
Grade 6	Practical Mathematics	40	1	40
	Achiever's Section	10	2	20
<b>Grand Total</b>		<b>50</b>		<b>60</b>

The total duration of the exam is 60 minutes.

## Syllabus

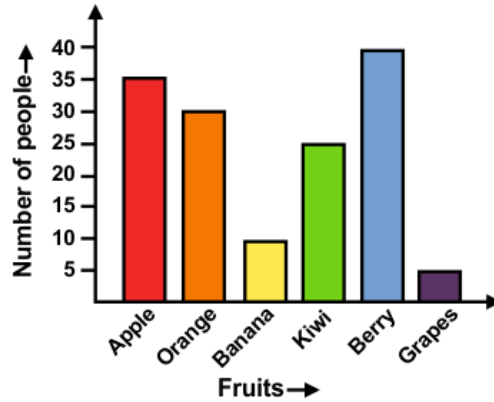
**Section 1:** Knowing Our Numbers, Whole Numbers, Playing with Numbers, Basic Geometrical Ideas, Understanding Elementary Shapes, Integers, Fractions, Decimals, Data Handling, Mensuration, Algebra, Ratio And Proportion, Symmetry, Practical Geometry.

**Achievers Section:** Higher Order Thinking Questions - Syllabus as per Section 1

For more details, visit <https://www.crestolympiads.com/maths-olympiad-cmo>



6. The given graph shows the fruit preferences of people. How many more people prefer oranges over bananas?



- a. 5  
b. 10  
c. 15  
d. 20
7. Two regular pentagons of side 5 cm are joined together as shown in the figure. Find the perimeter of the new figure:



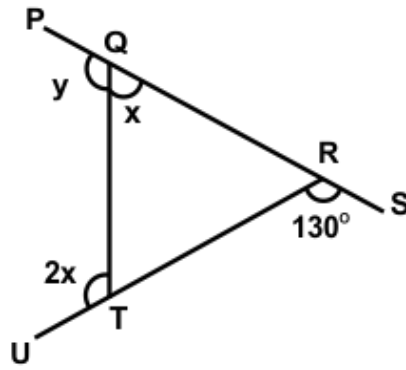
- a. 35 cm  
b. 40 cm  
c. 45 cm  
d. 50 cm
8. How many lines of symmetry are there in an equilateral triangle?
- a. 0  
b. 1  
c. 2  
d. 3
9. The ratio of two numbers is 3:7. If the sum of the numbers is 700, find the two numbers.
- a. 210, 490  
b. 270, 490  
c. 110, 490  
d. 110, 650
10. Find the value of x:  
 $11 : 13 :: x : 26$
- a. 20  
b. 21  
c. 22  
d. 24
11. A car covers a distance of 39.25 km using 2.5 L of petrol. How much distance will it cover in 1 L of petrol?
- a. 12.4 km  
b. 15.7 km  
c. 17.5 km  
d. 19.25 km



19. George travels from place A to place B and Peter travels from place B to place A. George travels one-third of the distance and Peter travels one-fourth of the distance. The distance travelled by George is one kilometre more than the distance travelled by Peter. What is the distance between place A and place B? (In km)
- a. 9  
b. 10  
c. 12  
d. 18
20. If A, B, C, and D represent  $\times$ ,  $\div$ ,  $+$  and  $-$ , respectively, then find the value of:  
90B3A5D3C9
- a. 12  
b. 24  
c. 156  
d. 30
21. What must be added to 203 to get a number whose digits are reversed from the given number?
- a. 100  
b. 99  
c. 89  
d. 77
22. Which of the following is not a pair of twin primes between 10 and 40?
- a. (11, 13)  
b. (21, 23)  
c. (17, 19)  
d. (29, 31)
23. If 64 and 48 are divisible by 4 then what is the difference of the given numbers so that it is divisible by 4?
- a. 12  
b. 18  
c. 20  
d. 16
24. Which of the following will not be the statement for the algebraic expression  $20z$ ?
- a. The product of  $z$  and 20  
b.  $z$  multiplied by 20  
c. 20 times  $z$   
d. 20 divided by  $z$
25. It takes 90 minutes to wash 20 vehicles at a car wash. At this rate, how many minutes does it take to wash 5 vehicles?
- a. 22 minutes  
b. 14 minutes  
c.  $22\frac{1}{2}$  minutes  
d.  $7\frac{1}{2}$  minutes
26. In a triangle PQR, if  $PQ + QR = 10$  cm,  $QR + PR = 12$  cm and  $PR + PQ = 16$  cm, then the perimeter of the triangle is:
- a. 19 cm  
b. 17 cm  
c. 28 cm  
d. 22 cm

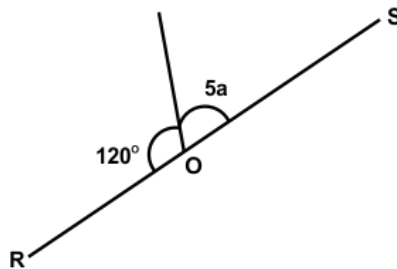


33. In the figure, PQRS and RTU are straight lines. The value of 'y' is:



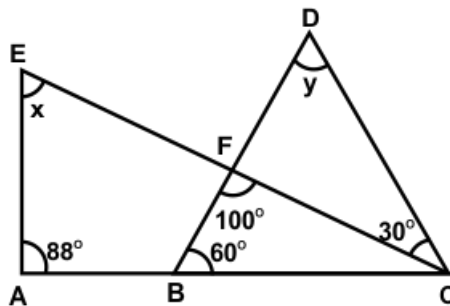
- a.  $100^\circ$
- b.  $130^\circ$
- c.  $115^\circ$
- d.  $145^\circ$

34. Find the value of 'a' in the below figure, given that ROS is a straight line.



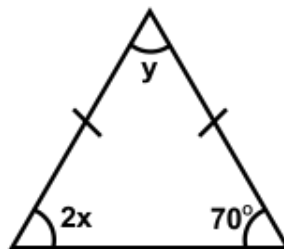
- a.  $60^\circ$
- b.  $48^\circ$
- c.  $12^\circ$
- d.  $6^\circ$

35. In the figure shown below, ABC and EFC are straight lines. Find the value of  $x + y$ .



- a.  $120^\circ$
- b.  $130^\circ$
- c.  $138^\circ$
- d.  $142^\circ$

36. Consider an isosceles triangle as shown in the figure below. Find the value of  $x + y$ .



- a.  $62^\circ$
- b.  $70^\circ$
- c.  $75^\circ$
- d.  $83^\circ$

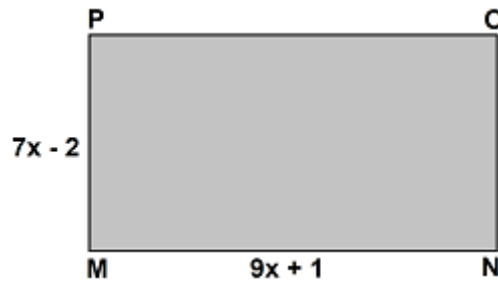




- a. P-2, Q-3, R-1, S-4  
c. P-4, Q-3, R-2, S-1

- b. P-1, Q-2, R-3, S-4  
d. P-3, Q-2, R-4, S-1

40. In the given rectangle MNOP, if length is decreased by  $3x$ , then find the new perimeter.



- a.  $(32x - 2)$  units  
c.  $(26x - 2)$  units
- b.  $(30x - 2)$  units  
d.  $(28x - 2)$  units

## Achiever's Section (Each Question is 2 Marks)

41. Find  $m$  and  $n$  in the given ratios:

$$48 : 384 = m : 784 = 53 : n$$

- a.  $m = 35, n = 88$   
c.  $m = 26, n = 153$
- b.  $m = 98, n = 424$   
d.  $m = 82, n = 584$

42. Choose the correct option:

In a factory men, women and children were employed in the ratio 8:5:1 to finish a job and their individual wages were in the ratio 5:2:3. Total daily wages of all amount to 318 cents. Find the total daily wages paid to each category:

- a. 240 cents, 60 cents, 18 cents  
c. 190 cents, 95 cents, 33 cents
- b. 210 cents, 70 cents, 38 cents  
d. 190 cents, 90 cents, 33 cents

43. Due to an increase of 30% in the price of a colour TV, the sale is reduced by 40%, so what will be the percentage change in income?

- a. 10% increase  
c. 35% decrease
- b. 10% decrease  
d. 22% decrease

44. Match the following:

Column A		Column B	
a.	$[2^9 \times 2^{12}] \div 2^5$	p.	$2^{10}$
b.	$[2^{19} \times 2^{14}] \div 2^{20}$	q.	$2^{13}$
c.	$[2^{17} \times 2^{18}] \div 2^{16}$	r.	$2^{16}$
d.	$[2^6 \times 2^{12}] \div 2^8$	s.	$2^{19}$

- a. (a) - (r); (b) - (p); (c) - (s); (d) - (q)  
c. (a) - (r); (b) - (q); (c) - (s); (d) - (p)
- b. (a) - (r); (b) - (s); (c) - (q); (d) - (p)  
d. (a) - (p); (b) - (q); (c) - (s); (d) - (r)



- a. 15 cm
- c. 10 cm

- b. 25 cm
- d. 8 cm

## Answer Key

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