



INDIAN SCHOOL AL WADI AL KABIR

Department: Mathematics

Class X

Worksheet – Real Numbers

22 – 04 - 2024

Questions of 1 mark each

Q.1.	If a and b are two consecutive natural numbers then the HCF (a, b) is							
	A	1	B	2	C	ab	D	a + b
Q.2.	If two positive integers a and b are written as $a = x^3y^2$ and $b = xy^3$; x, y are prime numbers, then HCF (a, b)							
	A	xy	B	xy^2	C	x^3y^3	D	x^2y^2
Q.3.	The product of the HCF and LCM of the smallest prime number and the smallest composite number is							
	A	2	B	4	C	8	D	16
Q.4.	In a formula racing competition, the time taken by two racing cars A and B to complete one round of the track is 30 minutes and p minutes respectively. If the cars meet again at the starting point for the first time after 90 minutes and the $HCF(30, p) = 15$, then the value of p is (CFQ)							
	A	45 minutes	B	60 minutes	C	75 minutes	D	180 minutes
Q.5.	If HCF of 65 and 117 is expressible in the form $65m - 117$, then the value of m is							
	A	4	B	2	C	8	D	6
Q.6.	If $p^2 = \frac{32}{50}$, then p is a/an							
	A	whole number	B	integer	C	rational number	D	irrational number
Q.7.	What is the largest number that divides 245 and 1029, leaving remainder 5 in each case?							
	A	16	B	15	C	9	D	5

Q.8.	The LCM of two co-prime numbers is always the							
	A	Sum of the numbers	B	Difference of the numbers	C	Product of the numbers	D	1

Q.9.	For the given factor tree							
	<pre> graph TD 1365((1365)) --- 3((3)) 1365 --- 455((455)) 455 --- a((a)) 455 --- 91((91)) 91 --- 7((7)) 91 --- b((b)) </pre>							

A	a = 5, b = 13	B	a = 13, b = 5	C	a = 65, b = 13	D	a = 5, b = 15
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Q.10.	The LCM of $2^3 \times 3^2$ and $2^2 \times 3^3$ is							
	A	3^3	B	2^3	C	$2^3 \times 3^3$	D	$2^2 \times 3^2$

ASSERTION AND REASONING

	<p>DIRECTION: In question numbers 11 and 12, a statement of Assertion (A) is followed by a statement of Reason (R). Choose the correct option</p> <p>(a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A)</p> <p>(b) Both Assertion (A) and Reason (R) are true and Reason (R) is not the correct explanation of Assertion (A)</p> <p>(c) Assertion (A) is true but reason (R) is false.</p> <p>(d) Assertion (A) is false but reason (R) is true.</p>							
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Q.11.	<p>Assertion: The HCF of two numbers is 16 and their product is 3072. Then their LCM = 162.</p> <p>Reason: If a, b are two positive integers, then $HCF(a, b) \times LCM(a, b) = a \times b$</p>							
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Q.12.	<p>Assertion: $\sqrt{7}$ is an irrational number.</p> <p>Reason: A square root of a prime number is always an irrational number.</p>							
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Questions of 2 marks each

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| Q.13. | Can two numbers have 18 as their HCF and 380 as their LCM? Justify your answer. |
| Q.14. | The HCF of two numbers is 23 and their LCM is 1449. If one of the numbers is 161, find the other. |
| Q.15. | Explain why $(17 \times 11 \times 2 + 17 \times 11 \times 5)$ is a composite number. |
| Q.16. | Three bells ring at an interval of 4, 7 and 14 minutes. All three bells rang together at 6am, at what time will the three bells ring together next? |

Questions of 3 marks each

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| Q.17. | Find the smallest number which when increased by 17 is exactly divisible by 520 and 468. |
| Q.18. | In a school there are two sections, namely A and B, of class X. There are 30 students in section A and 28 students in section B. Find the minimum number of books required for their class library so that they can be distributed equally among students of section A or section B |
| Q.19. | Aakriti decided to distribute milk in an orphanage on her birthday. The supplier brought two milk containers which contain 398 litres and 436 litres of milk. The milk is to be transferred to other containers so that 7 litres and 11 litres of milk is left in both the containers respectively. What will be the maximum capacity of the measuring drum? |

Questions of 5 marks each

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| Q.20. | Prove that $\sqrt{5}$ is an irrational number. Hence prove that $2 - 3\sqrt{5}$ is an irrational number. |
| Q.21. | National Art convention got registrations from students from all parts of the country, of which 60 are interested in music, 84 are interested in dance and 108 students are interested in handicrafts. For optimum cultural exchange, organizers wish to keep them in minimum number of groups such that each group consists of students interested in the same artform and the number of students in each group is the same. Find the number of students in each group. Find the number of groups in each art form. How many rooms are required if each group will be allotted a room? (CFQ) |

Case study question (4 marks)

Q.22. February 14 is celebrated as International Book Giving Day and many countries in the world celebrate this day. Some people in India also started celebrating this day and donated the following number of books of various subjects to a public library:

History = 96, Science = 240, Mathematics = 336.

These books have to be arranged in minimum number of stacks such that each stack contains books of only one subject and the number of books on each stack is the same.



Based on the above information, answer the following questions:

- (i) How many books are arranged in each stack?
- (ii) How many stacks are used to arrange all the Mathematics books?
- (iii) (a) Determine the total number of stacks that will be used for arranging all the books.
 (b) If the thickness of each book of History, Science and Mathematics is 1.8 cm, 2.2 cm and 2.5 cm respectively, then find the height of each stack of History, Science and Mathematics books.

ANSWERS

Q.1	A	Q.2	B	Q.3	C	Q.4	A	Q.5	B
Q.6	C	Q.7	A	Q.8	C	Q.9	A	Q.10	C
Q.11	d	Q.12	a	Q.13	No, because 18 is not a factor of 380.	Q.14	207	Q.16	6:28am
Q.17	4663	Q.18	420	Q.19	17 litres	Q.21	HCF = 12 5,7,9,21	Q.22	(i) 48 (ii) 7 (iii) 14 (iv) 86.4cm, 105.6 cm, 120cm