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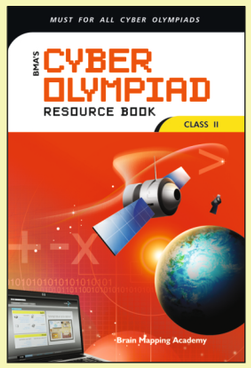

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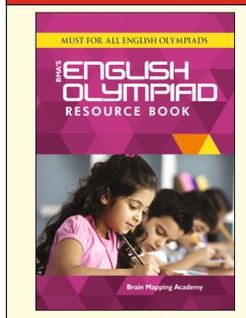

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Publisher's Note

Sometimes the understanding of fundamental concepts alone does not help the students to crack the competitive exams as most of them are objective in structure. Students need rigorous training to familiarize themselves to the style of the exams they are attempting. The board exams which are of qualifying, but not competitive nature do not completely address the needs of students in testing them in objective type format.

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Care has been taken to design thought-provoking questions. These should help students to attain a deeper understanding of principles. The questions have been reviewed to fill the gaps in problem coverage and to build the confidence in the students. They have also been expanded to impart reasoning/logical/analytical skills.

This book will cater all the requirements of the students who are approaching national/state level talent search examinations and also Olympiad exams. This book also complements the additional preparation needs of the students for the regular board exams.

We took utmost care to make this the best resource book available for the talent /olympiad exams aspirants. We welcome criticism from the students, teacher community and educators, especially concerning any errors and deficiencies which may have remained in this edition and the suggestions for improvement for the next edition.

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UIMO Unified International Mathematics Olympiad

Aim of these examinations

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For Class 2

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For Classes 3 to 5

Mathematics	:	25 marks
General Science	:	30 Marks
Critical Thinking	:	05 Marks

For Classes 6 to 10

Mathematics	:	25 marks
Physics	:	10 marks
Chemistry	:	10 marks
Biology	:	10 marks
Critical Thinking	:	05 marks

For Class 11 & 12

Mathematics/Biology	:	25 marks
Physics	:	15 marks
Chemistry	:	15 marks
Critical Thinking	:	05 mark

UIMO

For Classes 1 & 2

Mathematics	:	0 ma
Logical Reasoning	:	Marks

For Classes 3 to

Mathematics	:	35 marks
Logical Re oning	:	10 Marks
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For Classes 6 to 12

hemat -1	:	30 marks
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CHAPTER 03

Multiplication

Synopsis

Multiplication:

- Multiplication is the same as repeated addition. × is the symbol for multiplication.
- The number to be multiplied is called the MULTIPLICAND.
- The number by which we multiply is called the MULTIPLIER.
- The answer is called the PRODUCT.

e.g., 24 × 3 = 72

Multiplicand Multiplier Product

Note: **The product of a number and zero is zero.**
The product of a number and 1 is the number itself.
Even if the order of the numbers to be multiplied is changed, the product remains the same.

1. Multiplication of a 1 – digit number by another 1 – digit number:

e.g., 3 × 9 =

Multiply the numbers and write the product.

2. Multiplication of a 2 – digit number by a 1 – digit number:

e.g., Multiply 98 by 3.

First multiply **ones** and then multiply **tens.** Regroup the product if needed.

Step – 1: Multiply 8 ones by 3.
8 ones × 3 = 24 ones = 2 tens + 4 ones
Write 4 in the ones place.
Carry 2 tens to the tens place.

②	
T	O
9	8
×	3
	4

Step – 2: Multiply 9 tens by 3.
9 tens × 3 = 27 tens
= 20 tens + 7 tens
= 2 hundreds + 7 tens

	T	O
	9	8
	×	3
2	9	4

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Add the carried 2 tens to 7 tens. So, 7 tens + 2 tens = 9 tens.

Write 9 in the tens place. Write 2 in hundreds place.

3. Multiplication of a 2 - digit number by another 2–digit number:

e.g., Multiply 36 by 25.

Step – 1: First multiply ones.

$6 \times 5 =$

T	O
3	0

Write 0 in the ones place and carry 3 tens to the tens place.

Step – 2: Multiply the digit in **tens** place of the multiplicand by the **ones** digit of the multiplier. $3 \times 5 = 15$.

Now add the 3 carried from the product of ones to 15, which gives 15 + 3 = 18. Write 18 beside 0 in the product.

Step – 3: Now place a 0 below 0 in the product 180.

$$\begin{array}{r} \text{T}\ \ \text{O} \\ 3\ \ 6 \\ \times\ 2\ \ 5 \\ \hline 1\ 8\ 0 \end{array}$$

Multiply the digit 6 in **ones** place of the multiplicand by the digit 2 in **tens** place of multiplier. $6 \times 2 = 12$.

Write 2 below 8 in the product and carry 1 to the tens place.

$$\begin{array}{r} \overset{1}{} \\ \text{T}\ \ \text{O} \\ 3\ \ 6 \\ \times\ 2\ \ 5 \\ \hline 1\ 8\ 0 \\ 2\ 0 \end{array}$$

Step – 4: Multiply 3 in the **tens** place by 2 in the tens place of the multiplier.

$3 \times 2 = 6$. Add the 1 carried from previous product to get 6 + 1 = 7. Now, write 7 below 1 in 180.

$$\begin{array}{r} \text{T}\ \ \text{O} \\ 3\ \ 6 \\ \times\ 2\ \ 5 \\ \hline 1\ 8\ 0 \\ +\ 7\ 2\ 0 \\ \hline 9\ 0\ 0 \end{array}$$

Now add the products and write the sum which is the required product of the two given numbers.

$\therefore$ $36 \times 25 = 900$

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Multiple Choice Questions

[Each question has only one correct option]

01 If both equations given are true, which of the following equations must also be true ?

□ − ○ = 6

○ + ○ = 2

(A) □ × ○ = □

(B) ○ × 2 = ○

(C) □ + □ = 12

(D) □ + ○ = □

02 Rajani's family eats 4 to 6 apples every day. What is the reasonable number of days that it will take Rajani's family to eat 20 apples ?

(A) More than 10 days

(B) Between 6 and 10 days

(C) Between 3 and 6 days

(D) Less than 3 days

03 If ◯ × 8 = 96, what is the value of ◯ ?

(A) 12 (B) 8 (C) 104 (D) 9

04 7 + 7 + 7 + 7 + 7 = ◎ × 7. What is value of ◎ ?

(A) 1 (B) 5 (C) 6 (D) 7

05 17 × 5 = (10 × 5) + (☺ × 5). Find the value of ☺.

(A) 1 (B) 3 (C) 5 (D) 7

06 In the multiplication example shown, find the value of A.

A		3
×		5
2	1	5

(A) 1 (B) 2 (C) 3 (D) 4

07 Write a multiplication sentence for the following figures.

(A) 3 × 7 = 21 (B) 7 + 3 = 10

(C) 7 + 0 = 7 (D) 3 + 3 + 3 = 9

08 Find the missing number.

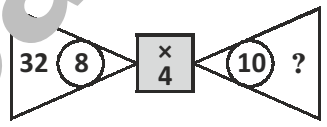
16 20 24 28 ? ?

(A) 30 (B) 32 (C) 34 (D) 38

09 3 × 4 is ? more than 2 × 4. Which number is missing ?

(A) 2 (B) 3 (C) 6 (D) 4

10 Find the missing number in the following figure.

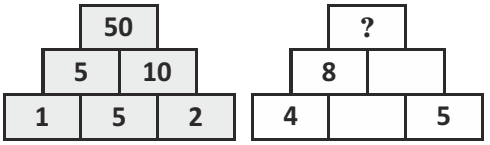


(A) 40 (B) 14 (C) 80 (D) 4

11 An art teacher bought 8 boxes of crayons. There were 10 crayons in each box. How many crayons did she buy altogether ?

(A) 10 (B) 20 (C) 40 (D) 80

12 Find the number which replaces the question mark, by applying the same rule as that given in the example.



(A) 160 (B) 80 (C) 56 (D) 8

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Multiple Choice Questions

[Each question has only one correct option]

13 2 × 10 = 4 × ____. Which number should fill the blank ?

(A) 5 (B) 8 (C) 10 (D) 4

14 There are 2 buttons on each shirt. How many buttons are there on 6 shirts ?

(A) 2 (B) 6 (C) 24 (D) 12

15 Each table has 4 legs. How many legs do 5 tables have ?

(A) 4 (B) 5 (C) 10 (D) 20

16 An ant has 6 legs.

1 pair of legs = 2 legs

How many pairs of legs do 7 ants have ?

(A) 21 (B) 42 (C) 7 (D) 3

17 Mrs. Raj sewed 4 skirts for her daughters. She sew 2 red buttons on each skirt. She sew 2 more pink buttons than red buttons. How many buttons did she sew altogether ?

(A) 8 (B) 24 (C) 16 (D) 32

18 Sruthi bought 8 packets of sweets. Each packet contains 5 sweets. She gave her brother 2 packets of sweets and ate 3 sweets. How many sweets is she having with her ?

(A) 30 (B) 34 (C) 35 (D) 27

19 Mother ordered 3 trays of eggs. Each tray contains 12 eggs. 4 eggs were rotten and 13 were cracked. How many good eggs were there ?

(A) 17 (B) 21 (C) 13 (D) 26

20 57 × 4 is the same as which of the following?

(A) 50 + 7 + 4 (B) 200 + 280

(C) 5 × 74 (D) 4 × 57

21 There are 21 boys and 18 girls in each class. How many pupils are there in 5 classes ?

(A) 378 (B) 45

(C) 90 (D) 95

22 A T-shirt costs ₹ 29. What is the cost of 5 such T-shirts ?

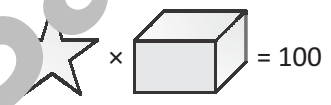
(A) ₹ (B) ₹ 43

(C) 140 (D) ₹ 145

23 32 × 5 = ___ tens. Which number should fill the blank ?

(A) 6 (B) 16 (C) 60 (D) 160

24 What does stand for ?



(A) 1 (B) 2 (C) 3 (D) 50

25 Which number is 2 tens 8 ones more than 13 × 4 ?

(A) 24 (B) 52 (C) 70 (D) 80

26 = 200

If is three times , find the difference between and .

(A) 50 (B) 100 (C) 25 (D) 125

27 ? × 3 = 3 + 3 + 3 + 3 + 9. What is the missing number in the box ?

(A) 3 (B) 5 (C) 6 (D) 7

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Multiple Choice Questions

[Each question has only one correct option]

28 X and Y are two different single - digit numbers in the given multiplication problem.

$$\begin{array}{r} X \\ \times\ Y \\ \hline 3\ X \end{array}$$

What is the value of X + Y ?

(A) 14 (B) 10 (C) 35 (D) 12

29 Which of the following is 7 fours ?

(A) 26 (B) 7 × 4

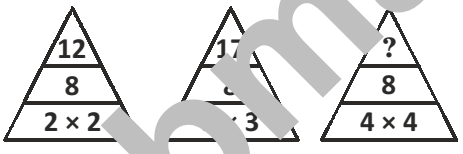
(C) 4 + 4 + 4 + 4 (D) 7 + 4

30 Find the missing number.

$$4 \times 8 = 2 \times (?) + 16$$

(A) 16 (B) 4 (C) 32 (D) 8

31 Look at the pattern given.



What is the missing number ?

(A) 12 (B) 24 (C) 9 (D) 6

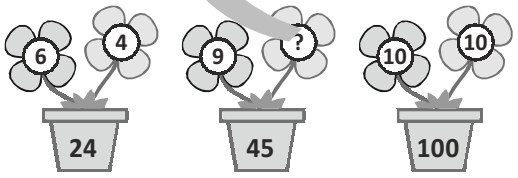
32 Find the values of 'p' and 'q'.

$$7 \times \boxed{p} = 4 \times \boxed{q} + 4$$

(A) p = 4; q = 6 (B) p = 6; q = 4

(C) p = 4; q = 4 (D) p = 6; q = 6

33 Find the missing number.



(A) 7 (B) 5 (C) 9 (D) 6

34 Which of the following is the same as groups of 8 ?

(A) 4 eights (B) 4 + 8

(C) 8 × 8 × 8 × 8

(D) 4 × 4 × 4 × 4 × 4 × 4 × 4 × 4

35 What is the product of 5 tens and 3 ?

(A) 8 tens (B) 15 tens

(C) 80 tens (D) 150 tens

36 By how much is 5 × 3 more than 3 + 3 + 3 ?

(A) 3 (B) 6 (C) 9 (D) 3

37 What is 9 × 4 ?

(A) 3 groups of 4 + 3 groups of 4

(B) 4 groups of 3 + 4 groups of 4

(C) 3 groups of 6 + 4 groups of 6

(D) 4 groups of 6 + 6 groups of 4

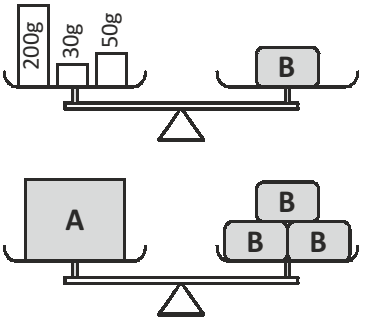
38 What are the signs that replace (a) and (b) in order ?

$$100\ \boxed{(a)}\ 73 = 3\ \boxed{(b)}\ 9$$

(A) –, + (B) ×, –

(C) –, × (D) +, ×

39 What is the mass of box A ?



(A) 1120 g (B) 280 g

(C) 840 g (D) 560 g

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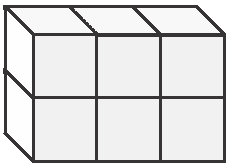
Previous Contest Questions

[Each question has only one correct option]

40 What is the mass of the figure if each cube in it has a mass of 6 g ?



(A) 24 g (B) 12 g

(C) 36 g (D) 48 g

41 Which of the following is correct ?

(A) 8×5 [>] 10×4

(B) 6×8 [>] 4×4

(C) 7×3 [<] 2×5

(D) 4×6 [>] 3×9

42 How many times 6 is 36 ?

(A) 6 (B) 18

(C) 9 (D) 4

43 7×9 is 39 more than which of the given numbers ?

(A) [illegible] (B) 4[illegible]

(C) 24 (D) 3[illegible]

44 By how much is 10×2 less than 7×7 ?

(A) 29 (B) 20

(C) 69 (D) 49

45 There are 9 bicycles in a cycle stand. How many wheels do the 9 bicycles have altogether ?

(A) 27 (B) 9

(C) 18 (D) 4

46 A shopkeeper sells apples in bags of five. If he sold 8 bags, how many apples did he sell altogether ?

(A) 35 (B) [illegible]

(C) 13 (D) [illegible]

47 A frog has 4 legs and a chicken has 2 legs. How many legs do 3 frogs and 5 chickens have altogether ?

(A) [illegible] (B) 10

(C) 12 (D) [illegible]

48 How many carrots are there in 3 rows of 10 carrots ?

(A) 13 (B) 7

(C) 30 (D) 20

49 There are 3 girls and 2 boys in a group. Each child has 3 notebooks. How many notebooks do they have altogether ?

(A) 3×3 (B) 5×5

(C) 5×3 (D) $5 + 3$

50 A lion eats 3 kg of meat a day. How much meat does it eat in a week ?

(A) 21 kg (B) 18 kg

(C) 10 kg (D) 24 kg

51 Which one of the statement below is false ?

(A) $4 \times 8 = 8 \times 4$

(B) $10 + 10 + 10 = 3 \times 10$

(C) $5 + 5 + 5 + 5 = 5 \times 4$

(D) 4×10 is less than 5×8

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