

Multiplication and Division

Exercise - 1

Q-1). Write the numbers vertically and multiply -

$$\begin{array}{r}
 4921 \times 8 \\
 \hline
 39368
 \end{array}$$

$$\begin{array}{r}
 9298 \times 23 \\
 \hline
 185960 \\
 +185960 \\
 \hline
 213854
 \end{array}$$

$$\begin{array}{r}
 3125 \times 245 \\
 \hline
 15625 \\
 125000 \\
 +625000 \\
 \hline
 765625
 \end{array}$$

c).
d).
f).

In H.W. notebook

(Q)

Q-2). Find the quotient by long division method.
Write the remainder, if any:

(R)

a). $753 \div 6$

$$\begin{array}{r}
 125 \\
 \hline
 6 \overline{) 753} \\
 \underline{-6} \downarrow \\
 15 \downarrow \\
 \underline{-12} \downarrow \\
 33 \\
 \underline{-30} \\
 03
 \end{array}$$

So, $Q = 125$
 $R = 3$

c). $7328 \div 64$

$$\begin{array}{r}
 114 \\
 \hline
 64 \overline{) 7328} \\
 \underline{-64} \downarrow \\
 892 \downarrow \\
 \underline{-64} \downarrow \\
 288 \\
 \underline{-256} \\
 32
 \end{array}$$

So, $Q = 114$
 $R = 32$

b).] In H.W. notebook

d).]

Properties of Multiplication

- 1). Multiplicative property of 1. -
 eg: $36 \times 1 = 36$
 $375 \times 1 = 375$
 (product will be the number itself)
- 2). Multiplicative property of 0. -
 eg: $79 \times 0 = 0$
 $118 \times 0 = 0$
 (Product will be 0)
- 3). Commutative property -
 (order of the numbers will not change the answer)
 eg - $8 \times 4 = 32$
 $4 \times 8 = 32$
- 4). Associative property -
 eg $\rightarrow (20 \times 4) \times 100 = 80 \times 100 \Rightarrow 8000$
 $20 \times (4 \times 100) = 20 \times 400 \Rightarrow 8000$
 $(20 \times 100) \times 4 = 2000 \times 4 \Rightarrow 8000$
- 5). Distributive property -
 eg $\rightarrow 58 \times 107$
 $58 \times 107 = 58 \times (100 + 7)$
 $= 58 \times 100 + 58 \times 7$
 $= 5800 + 406$
 $= 6206$

Exercise - 2

Date: / /

Q-1). In book (page no. 27)

Q-2). In book (page no. 27)

Q-3). Find the product (using distributive property) -

a). already explained under the Distributive property.

b). 83×96

$$\begin{aligned}83 \times 96 &= 83 \times (90 + 6) \\&= (83 \times 90) + (83 \times 6) \\&= 7470 + 498 \\&= 7968 \text{ Ans}\end{aligned}$$

c). 42×172

$$\begin{aligned}42 \times 172 &= 42 \times (100 + 70 + 2) \\&= (42 \times 100) + (42 \times 70) + (42 \times 2) \\&= 4200 + 2940 + 84 \\&= 7224 \text{ Ans}\end{aligned}$$

d). 18×3065

$$\begin{aligned}18 \times 3065 &= 18 \times (3000 + 0 + 60 + 5) \\&= (18 \times 3000) + 0 + (18 \times 60) + (18 \times 5) \\&= 54000 + 0 + 1080 + 90 \\&= 55170 \text{ Ans}\end{aligned}$$

e). In H.W. notebook.

f).]

Properties of Division

1). When a number is divided by 1, the quotient is the number itself.

$$\text{eg} \rightarrow \begin{array}{l} 366 \div 1 = 366 \\ 49 \div 1 = 49 \end{array}$$

2). When a number is divided by itself, the quotient is 1.

$$\text{eg} \rightarrow \begin{array}{l} 729 \div 729 = 1 \\ 61 \div 61 = 1 \end{array}$$

3). When 0 is divided by any number (except 0), the quotient is always 0.

$$\text{eg} \rightarrow \begin{array}{l} 0 \div 76 = 0 \\ 0 \div 113 = 0 \end{array}$$

4). Division by 0 is not possible.

5). Division Algorithm \rightarrow

$$\text{Dividend} = \text{Divisor} \times \text{Quotient} + \text{Remainder}$$

$\text{Divisor} \overline{) \text{Dividend}}$	$(\text{Quotient}$	$d) \overline{) D}$	R
\downarrow		\downarrow	
Remainder			

Exercise - 4

Date: / /

Q-1). In book (page no. - 30)

Q-2). Divisor (d) = 35
Quotient (Q) = 22
Remainder (R) = 14
Dividend (D) = ?

By Division Algorithm \rightarrow

$$\boxed{D = d \times Q + R}$$

$$\begin{aligned} D &= 35 \times 22 + 14 \\ &= 770 + 14 \\ D &= 784 \text{ Ans.} \end{aligned}$$

$$\begin{array}{r} 1 \\ 35 \\ \times 22 \\ \hline 70 \\ 700 \\ \hline 770 \end{array}$$

Q-3). D = 3699
Q = 231
R = 3
d = ?

By Division Algorithm \rightarrow

$$\begin{aligned} D &= d \times Q + R \\ 3699 &= d \times 231 + 3 \\ 3699 - 3 &= d \times 231 \\ 3696 &= d \times 231 \end{aligned}$$

$$\begin{aligned} d \times 231 &= 3696 \\ d &= \frac{3696}{231} \end{aligned}$$

$$\boxed{d \Rightarrow 16} \text{ Ans}$$

$$\begin{array}{r} 16 \\ 231 \overline{) 3696} \\ \underline{- 231} \downarrow \\ 1386 \\ \underline{- 1306} \\ 0000 \end{array}$$

(Q) (R)

Q-4). Find the Quotient and Remainder —

$$\text{a). } \underbrace{62}_{\downarrow \text{Q}} \overline{) 847} \div \underline{1000} \\ \downarrow \text{R}$$

$$\text{so, } Q = 62 \\ R = 847$$

$$\text{b). } \underbrace{72}_{\downarrow \text{Q}} \overline{) 3456} \div 10000 \\ \downarrow \text{R}$$

$$\text{so, } Q = 72 \\ R = 3456$$

c).

d).

e).

f.)

In H.W. notebook

Checking \rightarrow

$$\begin{aligned}
 D &= d \times Q + R \\
 &= 453 \times 162 + 223 \\
 &= 73386 + 223 \\
 &= 73609
 \end{aligned}$$

$$\begin{array}{r}
 31 \\
 453 \\
 \times 162 \\
 \hline
 906 \\
 27180 \\
 + 45300 \\
 \hline
 73386
 \end{array}$$

So, Division is correct.

b).

d).

e).

f).

In H.W. notebook

Q-2). Cost of 216 shirts = ₹ 3,35,232
 Cost of 1 shirt = ?

$$\text{Cost of 1 shirt} = 335232 \div 216$$

$$\begin{array}{r}
 \text{(d)} \quad 216 \overline{) 335232} \quad (1552 \text{ (Q)}) \\
 \underline{-216} \downarrow \\
 1192 \\
 \underline{-1080} \downarrow \\
 01023 \\
 \underline{-1080} \downarrow \\
 00432 \\
 \underline{-432} \\
 000 \text{ (R)}
 \end{array}$$

$$\begin{array}{r}
 11 \\
 33+ \\
 1552 \\
 \times 216 \\
 \hline
 9312 \\
 15520 \\
 + 310400 \\
 \hline
 335232
 \end{array}$$

Checking \rightarrow

$$\begin{aligned}
 D &= d \times Q + R \\
 &= 216 \times 1552 + 0 \\
 D &= 335232
 \end{aligned}$$

So, Division is correct and cost of 1 shirt is ₹ 1552/-

Q-5). No. of clips manufactured by a factory = 936243
 No. of weeks = 21
 Clips manufactured in one day = ?

No. of days in a week = 7

No. of days in 21 week = $21 \times 7 = 147$ days

So, clips manufactured in 147 days = 936243
 " " " in one day = $\frac{936243}{147}$

$$\begin{array}{r}
 6369 \\
 147 \overline{) 936243} \\
 \underline{- 882} \\
 542 \\
 \underline{- 441} \\
 1014 \\
 \underline{- 882} \\
 01323 \\
 \underline{- 1323} \\
 0000
 \end{array}$$

So, 6369 clips are manufactured in one day.

Q-6). 1526 books can be packed in = 1 box
 6,48,550 books can be packed in = ?

So, Number of boxes are required =
 $= 648550 \div 1526$

$$\begin{array}{r} 425 \\ 1526 \overline{) 648550} \\ \underline{- 6104} \downarrow \\ 38115 \\ \underline{- 3052} \downarrow \\ 7630 \\ \underline{- 7630} \\ 0000 \end{array}$$

So, number of required boxes = 425 Ans.

Multiplication of a Number by 10, 100, 1000 and their Multiples

1. To multiply a number by 10, 20, 30, ..., 90, we multiply the number by 1, 2, 3, ..., 9 respectively and put **one zero** to the right of the product.

Examples : $287 \times 10 = 2,870$

$3287 \times 30 = (3287 \times 3) \times 10 = 9861 \times 10 = 98,610$

2. To multiply a number by 100, 200, 300, ..., 900, we multiply the number by 1, 2, 3, ..., 9 respectively and put **two zeros** to the right of the product.

Examples : $175 \times 100 = 17,500$

$829 \times 800 = (829 \times 8) \times 100 = 6632 \times 100 = 6,63,200$

3. To multiply a number by 1000, 2000, 3000, ..., 9000, we multiply the number by 1, 2, 3, ..., 9 respectively and put **three zeros** to the right of the product.

Examples : $128 \times 1000 = 1,28,000$

$3557 \times 4000 = (3557 \times 4) \times 1000 = 14228 \times 1000 = 1,42,28,000$

Exercise-2

Use Cordova Smart Class Software on the smart board in class to do Exercise.

1. Fill in the blanks using the multiplication facts :

(a) $2875 \times \boxed{0} = 0$

(b) $4217 \times \boxed{1} = 4217$

(c) $82728 \times 0 = \boxed{0}$

(d) $1 \times 8288 = \boxed{8288}$

(e) $7125 \times 3111 = 3111 \times \boxed{7125}$

(f) $\boxed{8175} \times 4200 = 4200 \times 8175$

(g) $72 \times (50 \times 8) = (72 \times 50) \times \boxed{8} = \boxed{50} \times (72 \times 8)$

2. Multiply :

(a) $178 \times 40 = \boxed{7120}$

(b) $2369 \times 70 = \boxed{165830}$

(c) $861 \times 900 = \boxed{774900}$

(d) $12629 \times 600 = \boxed{7577400}$

(e) $9297 \times 5000 = \boxed{46485000}$

(f) $6359 \times 3000 = \boxed{19077000}$

3. Find the product (using distributive property) :

(a) $58 \times 107 = \boxed{}$

(b) $83 \times 96 = \boxed{}$

(c) $42 \times 172 = \boxed{}$

(d) $18 \times 3065 = \boxed{}$

(e) $67 \times 99 = \boxed{}$

(f) $73 \times 998 = \boxed{}$

3. To divide a number by 1,00,000, we simply remove the last five digits to get the quotient.

The last five digits together form the remainder.

Example : $8,28,796 \div 1,00,000$

828796
 Quotient ↑ ↑ Remainder

Exercise-4

Use Cordova Smart Class Software on the smart board in class to do Exercise.

1. Fill in the blanks :

(a) $12547 \div 1 = 12547$

(b) $87450 \div 87450 = 1$

(c) $0 \div 99999 = 0$

(d) $0 \div 35 = 0$

2. Find a number which when divided by 35 gives the quotient 22 and remainder 14.

3. 3699 when divided by a certain number gives 231 as the quotient and 3 as the remainder. Find the number.

4. Find the quotient and remainder.

(a) $62847 \div 1000$

(b) $723456 \div 10000$

(c) $612345 \div 10000$

(d) $817567 \div 100000$

(e) $1745678 \div 100000$

(f) $8012345 \div 100000$

Division by 3-digit and 4-digit Numbers

Dividing a number by a 3-digit or 4-digit number is similar to the method learnt in Class IV.

Example 1 : Divide 8,25,476 by 172.

Solution :

$$\begin{array}{r}
 4799 \\
 172 \overline{) 825476} \\
 \underline{- 688} \\
 1374 \\
 \underline{- 1204} \\
 1707 \\
 \underline{- 1548} \\
 1596 \\
 \underline{- 1548} \\
 48
 \end{array}$$

Quotient = 4799

Remainder = 48

Checking

$$\begin{aligned}
 \text{Dividend} &= \text{Divisor} \times \text{Quotient} + \text{Remainder} \\
 &= 172 \times 4799 + 48 \\
 &= 825428 + 48 = 825476.
 \end{aligned}$$

		4	7	9	9
		×	1	7	2
<hr/>					
		9	5	9	8
3	3	5	9	3	0
+	4	7	9	9	0
<hr/>					
	8	2	5	4	2
<hr/>					
			8	2	8