Class : 7th Subject: Mathematics Topic Integers

Essential points

All natural numbers are integers

All whole numbers are integers

Zero is neither positive nor negative

Zero is the additive identity

$-a$ is the additive inverse of a and vice – versa

	Closure Law	Commutative law	Associative law
Addition	$a+b$ is an integer	$a+b=b+a$	$a+(b+c)=(a+b)+c$
Subtraction	$a-b$ is an integer	$a-b\neq b-a$	$a-(b-c)\neq(a-b)-c$
Multiplication	$a\times b$ is an ingeger	$a\times b=b\times a$	$a\times(b\times c)=(a\times b)\times c$
Division	$a\div b$ is an integer	$a\div b\neq b\div a$	$a\div(b\div c)\neq(a\div b)\div c$

Qno1: If $a=10, b=6,$ then show that $a-b\neq b-a$

Soln: Here $a=10\ and\ b=6$

$\Rightarrow a-b=10-6=4$

$and\ b-a=6-10=-4$

Therefore $a-b\neq b-a$

Qno2: If $a=7, b=4, c=3$ then show that

(i) $a+(b+c)=(a+b)+c$
(ii) $b\times(a+c)=b\times a+b\times c$
(iii) $(b\times c\times a)=a\times b\times c$
(iv) $b\times c=c\times a$

Sol (i) Here $a=7, b=4, c=3$

Then $a+(b+c)=7+(4+3)=7+7=14$

And $(a+b)+c=(7+4)+3=11+3=14$

Sol(ii) Here $b\times(a+c)=4\times(7+3)=4\times10=40$

And $b\times a+b\times c=4\times7+4\times3=28+12=40$

Similarly we can prove (iii) and (iv)

Qno3 The product of two integer is 195, if one of the integer is 13 , find the other integer

Soln : Product of two integer $=195$

One integer $=13$

Therefore other integer $=195\div13=15$

Qno4:Use the sign of $<,\ >\ or\ =$ in the box to make the statement true

(a) $(-8)+(-4)\ \ \|<\|\ \ (-8)-(-4)$
(b) $(-3)+7-(19)\ \ \|\ \ \|\ \ 15-8+(-9)$
(c) $23-41+11\ \ \|\ \ \|\ \ 23-44+14$

Soln: (a) $(-8)+(-4)=-8-4=-12$

And $(-8)—4=-8+4=-4$

Therefore $-4 > -12$ or $-12 < -4$

Similarly we can prove (b) and (c)

Home Assignment

Topic : Integer **Class: 7th**

Qno1: If $a = 6, b = -4$ then show that $a - b \neq b - a$

Qno2: If $a = 3$, $b = -2$, and $c = -1$ verify that

(a) $b \times (a + c) = b \times a + b \times c$
(b) $(b \times c \times a) = a \times b \times c$
(c) $b \times c = c \times a$

Qno3: The product of two integer is -182. If one of the integer is 13,

then find the other integer

Qno4: Represent the following numbers on a number line

(a) -7×2 (b) 3×5

Qno5: Verify commutative law under addition and multiplication if

(i) $a = -4$, $b = -3$ (ii) $a = -5, b = 6$

Qno7: Verify associative law and distributive law if

(a) $a = 2, b - -3, c = -4$

Multiple choice questions

Qno8: Which of the following is a correct statement?

$(a) -5 > -4$, (b) $-5 < -4$ (c) $-5 \leq -4$ (d) $-5 = -4$

Qno9: $6 - (-8) =$

(a) 2 (b) -2 (c) 14 (d) $None\ of\ these$

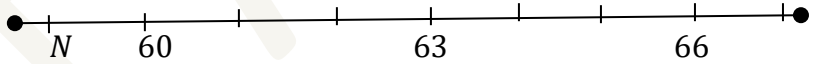
Qno10: The additive inverse of 12 is

(a) 6 (b) 0 (c) -12 (d) -7

Qno11: On subtracting -13 $from$ -8 , we get

(a) -21 (b) 21 (c) 5 (d) -5

Qno12 : The letter N represents which number ?



(a) 58 (b) 59 (c) 61 (d) 62

Qno13: Which one is correct

(a) All natural numbers are whole numbers , all whole numbers are integers
(b) All whole numbers are integers, all integers are natural numbers
(c) All integers are whole numbers , all natural numbers are integers.

Qno14: Fill in the blanks

(a) $-6 \times (\ldots\ldots) = 6$
(b) $(\ldots\ldots) \div 25 = 0$
(c) $(\ldots\ldots) \div 36 = -2$
(d) 0 is greater than every ……integer and less than every …… integer

Class : 7th **Subject: Mathematics**

Topic: Fractions and Decimals

Essential Points

Fraction is a part of a whole

The number of the form $\frac{a}{b}$ where a and b are whole numbers and $b \neq o$ are called fractions.

Here a is called numerator and b is called denominator of fraction.

A fraction whose numerator is less than the denominator is called proper fraction.

A fraction whose numerator is more than the denominator is called improper fraction.

A combination of whole number and proper fraction is called a mixed fraction.

Like fraction have same denominator.

If $\frac{a}{b}$ and $\frac{c}{d}$ are two fractions, then $\frac{a}{b} \times \frac{c}{d} = \frac{ac}{bd}$

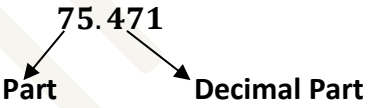
If $\frac{a}{b}$ and $\frac{c}{d}$ are two fractions, then $\frac{a}{b} \div \frac{c}{d} = \frac{a}{b} \times \frac{d}{c} = \frac{ad}{bc}$

Decimals

A part of a whole can expressed in decimal or decimals are another way of representing fractions.

A decimal or a decimals number contains a whole number part and a decimal number separated by a dot $(.)$

For example: In 356.47, 356 is the whole part and 47 is the decimal part.



See the following place value chart for

$$4563.427, \quad 879.34, \quad 6284.932$$

Thousand 1000	Hundred 100	Tens 10	Ones 1	Decimal Point	Tenths 1/10	Hundredth 1/100	Thousandths 1/1000
4	5	6	3	.	4	2	7
	8	7	9	.	3	4	
6	2	8	4	.	9	3	2

Qno1: Convert the following into an improper fraction

(a) $9\frac{1}{5}$ (b) $3\frac{2}{7}$ (c) $1\frac{5}{9}$

Sol: (a) $9\frac{1}{5} = 9 + \frac{1}{5} = \frac{9\times5+1}{5} = \frac{46}{5}$

Similarly we can prove (b) and (c)

Qno2: Convert the following into a mixed fraction

(a) $\frac{7}{3}$ (b) $\frac{41}{5}$ (c) $\frac{40}{21}$

Sol: $\frac{7}{3}$: *on dividing 7 by 3 ,we get*

$Quotient = 2, Remainder = 1\ and\ \ Divisor = 3$

Therefore $Rule = Quotient\ \frac{Remainder}{Divisor}$

$\frac{7}{3} = 2\frac{1}{3}$

Similarly we can prove , (b) and (c)

Qno3: Write three equivalent fractions for each of the following

(a) $\frac{1}{6}$ (b) $\frac{2}{5}$ (c) $\frac{9}{11}$

Soln: (a) $\frac{1}{6} = \frac{1\times2}{6\times2} = \frac{2}{12}$

$\frac{1}{6} = \frac{1\times3}{6\times3} = \frac{3}{18}$

$\frac{1}{6} = \frac{1\times5}{6\times5} = \frac{5}{30}$

So , $\frac{2}{12}$, $\frac{3}{18}$ $\frac{5}{30}$ $are\ equivalent\ to \frac{1}{6}$

Similarly we can prove (b) and (c)

Qno4: A rectangular sheet of paper is $12\frac{1}{2}\ cm\ \ long\ and\ 10\frac{2}{3} cm\ wide.$

Find its Perimeter

Soln:

Breadth $= b = 10\frac{2}{3} = \frac{32}{3} cm$

Length $= l = 12\frac{1}{2} = \frac{25}{2} cm$

Perimeter $= 2(l + b) = 2\left(\frac{32}{3} + \frac{25}{2}\right)$

$= 2\left(\frac{32\times2 + 25\times3}{6}\right) = 2\left(\frac{64+75}{6}\right) = 2\left(\frac{139}{6}\right) = \frac{139}{3} cm$

$= 46\frac{1}{3} cm$

Qno5: Write the fraction representing the shaded portion

(i) 

(ii) 

(ii) 

Soln: (i) $\frac{2}{4}$ (ii) $\frac{1}{4}$ (iii) $\frac{2}{9}$

Qno6: Write the following decimal numbers as number names

(i) 34.56 (ii) 4.778 (iii) 872.14

Soln: (i) $34.56 - Thirty\ four\ point\ five\ six$

(ii) $4.778 - \ Four\ point\ seven\ seven\ eight$

(iii) Try yourself

Qno7: Find the place value of $6, 9, and\ 4\ \ in\ 358.694$

Soln: Place value of $6\ is \frac{1}{10}$

Place value of $9\ is \frac{1}{100}$

Place value of $\ 4\ is \frac{1}{1000}$

Qno8: Add $291.45\ and\ 62.291$

Soln: First we convert $291.45\ and\ 62.291$ as like decimals and then place them and shown as below

$$\begin{array}{r} 291.450 \\ +62.291 \\ \hline 353.741 \end{array}$$

Qno9: Multiply

$(a)\ \ 2.3\ \times 4.2 \qquad (b)\ \ 3 \times 4.52 \qquad (c)\ \ 1.01 \times 2.44$

Soln (a) Multiple the number removing decimals

$$23 \times 42 = 966$$

Similarly we can solve (b) and (c)

Qno10: Divide

$(a)\ 285.6\ by\ 10 \quad (b)\ 2857.9\ by\ 100 \quad (c)\ 3125.62\ by\ 1000$

Soln (a) $285.6 \div 10 = 28.56$

Decimal is shifted to one place to the left

$(b)\ and\ (c)\ \ Try\ yourself$

Qno11: If 25 bags of wheat weight 412.5 kg. Find the weight of one Kg

Soln: Weight of 25 bags of wheat $= 412.5\ kg$

Weight of 1 kg of wheat $= \frac{412.5}{25} = 16.5\ kg$

Therefore weight of 1 bag of wheat is $16.5\ kg$

Home Assignment

Qno1: Convert the following into an improper fraction

(a) $\ 8\frac{1}{5} \qquad (b)\ \ 4\frac{2}{7} \qquad (c)\ \ 6\frac{5}{9}$

Qno2: Convert the following into a mixed fraction

(a) $\frac{17}{3} \qquad (b)\ \ \frac{41}{5} \qquad (c)\ \ \frac{100}{21}$

Qno3: Write three equivalent fractions for each of the following

(a) $\frac{1}{5} \qquad (b)\ \ \frac{2}{6} \qquad (c)\ \ \frac{9}{14}$

Qno4: A rectangular sheet of paper is $12\frac{1}{2}\ cm\ \ long\ and\ 10\frac{2}{3} cm\ wide.$

(a) Find its Perimeter (b) Find its Area

Qno5: Write the following decimal numbers as number names

$(i) \quad 33.56 \qquad (ii)\ 8.778 \qquad (iii)\ \ 876.14$

Qno6: Find the place value of $1, 2, and\ 3\ \ in\ 358.134$

Qno7: Add $295441.45\ and\ 6264.291$

Qno8: Multiply

$(a)\ \ 2.4\ \times 4.2 \qquad (b)\ \ 5 \times 4.52 \qquad (c)\ \ 15.01 \times 2.$

Qno9: Divide

$(a)\ 255.6\ by\ 10 \quad (b)\ 2757.9\ by\ 100 \quad (c)\ 3145.62\ by\ 1000$

Qno10: If 20 bags of wheat weight 482.5 kg. Find the weight of one Kg

Multiple Choice Question

(1) The expression $\frac{1}{15} \div \left(\frac{4}{15} + \frac{1}{3}\right)$ is equivalent to

$(a)\ \frac{1}{9} \quad (b)\ 9 \quad (c)\ \frac{1}{5} \quad (d)\ 5$

(2) $8\frac{1}{3}\%$ express as fraction is

$(a)\ \frac{25}{3} \quad (b)\ \frac{3}{25} \quad (c)\ \frac{1}{12} \quad (d)\ \frac{1}{4}$

(3) If $x\%\ of\ 24 = 64,$ then the value of $x\ is$

$(a)\ 37\frac{1}{2} \quad (b)\ 133\frac{1}{3} \quad (c)\ 266\frac{2}{3} \quad (d)\ 66\frac{2}{3}$

(4) The value of $(0.05)^3\ is$

$(a)\ 0.000125 \quad (b)\ 0.00125 \quad (c)\ 0.0125 \quad (d)\ 0.125$

(5) $1.04\ ?$

$(a)\ 1\frac{1}{5} \quad (b)\ 1\frac{2}{3} \quad (c)\ 1\frac{1}{25} \quad (d)\ None\ of\ these$

(6) $0.23 \times 0.3 = ?$

$(a)\ 0.69 \quad (b)\ 6.9 \quad (c)\ 0.069 \quad (d)\ None\ of\ these$

Fill in the blanks

(a) A fraction is a number representing a part of a ……..

(b) Five equivalent fractions of $\frac{3}{5}\ are$ ……

(c) $\frac{7}{8} \div 4\frac{1}{2}$ is ……..

(d) The value of 100.01×1.1 is ……..

(e) Dividing $217.44\ by\ 18$ we get ……..