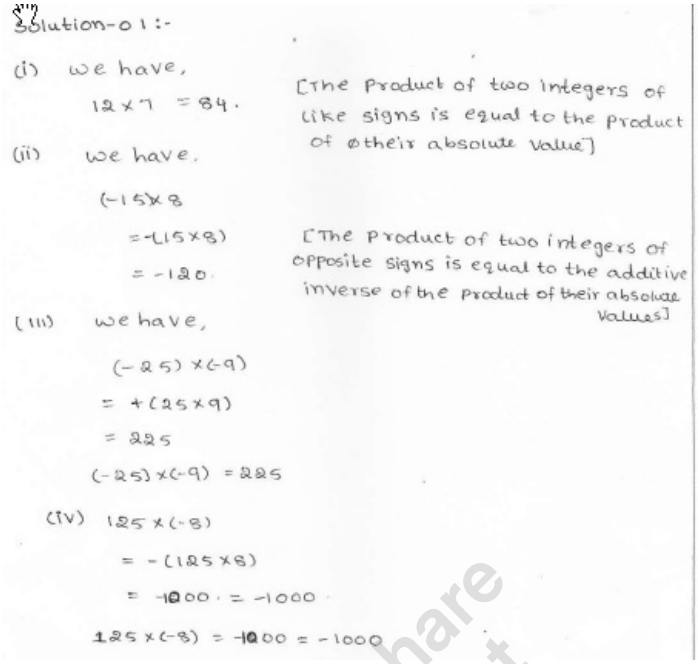
1. Integers

Exercise 1.1

Solution 1:



Solution-01:-

(i) we have,

$12 \times 7 = 84$.

[The Product of two integers of like signs is equal to the Product of their absolute value]

(ii) we have.

$(-15) \times 8$

$= -(15 \times 8)$

$= -120$.

[The Product of two integers of opposite signs is equal to the additive inverse of the Product of their absolute values]

(iii) we have,

$(-25) \times (-9)$

$= +(25 \times 9)$

$= 225$

$(-25) \times (-9) = 225$

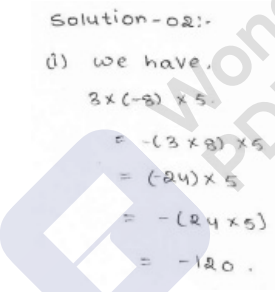
(iv) $125 \times (-8)$

$= -(125 \times 8)$

$= -1000 = -1000$

$125 \times (-8) = -1000 = -1000$

Solution 2:



Solution-02:-

(i) we have,

$3 \times (-8) \times 5$

$= -(3 \times 8) \times 5$

$= (-24) \times 5$

$= -(24 \times 5)$

$= -120$.

(ii) $9 \times (-3) \times (-6) = -(9 \times 3) \times (-6)$
$= -27 \times (-6)$
$= +(27 \times 6)$
$= 162.$

(iii) $(-2) \times 36 \times (-5) = -(2 \times 36) \times (-5)$
$= (-72) \times (-5)$
$= (72 \times 5)$
$= 360.$

(iv) $(-2) \times (-4) \times (-6) \times (-8) = +(2 \times 4) \times (6 \times 8)$
$= 8 \times 48$
$= 384.$

Solution 3:

Solution-03:-

(i) $1487 \times 327 + (-487) \times 327$
$= 486249 - 159249$
$= 327000.$

(ii) $28945 \times 99 - (-28945)$
$= 2865555 - 28945$
$= 2894500.$

Solution 4:

04 Yes.

X	-4	-3	-2	-1	0	1	2	3	4
-4	16	12	8	4	0	-4	-8	-12	-16
-3	12	9	6	3	0	-3	-6	-9	-12
-2	8	6	4	2	0	-2	-4	-6	-8
-1	4	3	2	1	0	-1	-2	-3	-4.
0	0	0	0	0	0	0	0	0	0
1	-4	-3	-2	1	0	1	2	3	4
2	-8	-6	-4	2	0	2	4	6	8
3	-12	-9	-6	3	0	3	6	9	12
4	-16	-12	-8	4	0	4	8	12	16

Solution 5:

Solution-05:-

(i) $58 \times (-1) = -(58 \times 1)$
$= -58$

(ii) $0 \times (-1) = 0$

(iii) $(-225) \times (-1) = +(225 \times 1)$
$= 225.$

Solution 6:

Solution-06:-

06. (i) negative positive [+ve] [$\because$ -ve x -ve = +ve]

(ii) negative [-ve x +ve = -ve]

(iii) negative value.

Solution 7:

Solution -07:-

(i) $(8+9)\times 10 = 17\times 10$

$= 170$

$8+9\times 10 = 8+90 = 98$

$(8+9)\times 10 > 8+9\times 10$.

(ii) $(8-9)\times 10 = (-1)\times 10$

$= -(1\times 10)$

$= -10$

$8-9\times 10 = 8-90$

$= -82$

$-10 > -82$

$(8-9)\times 10 > 8-9\times 10$.

(iii) $\{(-2)*5\}\times\{-6\} = (-7)\times(-6)$

$= (7\times 6)$

$= 42$

$-2-5\times(-6) = -2+(5\times 6)$

$= 30-2$

$= 28$

$\{(-2)-5\}\times(-6) > -2-5\times(-6)$

Solution 8:

Solution 8:

(i) $a\times(-1) = -30$

When multiplied by a negative integer, 'a' gives a negative integer. Hence, 'a' should be a positive integer.

$a = 30$.

(ii) $a\times(-1) = 30$

When multiplied by a negative integer, 'a' gives a positive integer. Hence, 'a' should be a negative integer.

$a = -30$.

Solution 9:

Solution-09:-

(i) LHS $= 19\times\{7+(-3)\}$

$= 19\times\{7-3\}$

$= 19\times 4$

$= 76$

RHS $= 19\times 7+19\times(-3)$

$= 133-57$

$= 76$

$\therefore$ LHS = RHS.

Solution 10:

Solution -10 :-

(i) True
(ii) True
(iii) False
(iv) False
(v) False
(vi) True

Exercise 1.2

Solution 1:

Exercise-1.2

Solution-01:-

1>(i) $\frac{102}{17} = \frac{11021}{1171} = \frac{102}{17} = 6$

(ii) we have,

$\frac{|-85|}{|5|} = -\frac{85}{5} = -17$

(iii) we have,

$\frac{|-161|}{|-23|} = \frac{161}{23} = 7$

(iv) we have

$\frac{76}{-19} = \frac{|76|}{|-19|} = -\frac{76}{19} = -4.$

(v) $\frac{17654}{-17654} = -\frac{17654}{17654}$

$= -1.$

(vi) $\frac{-729}{-27} = +\frac{729}{27}$

$= 27.$

1.(vii) :- $\frac{21590}{-10}$

$= \frac{|21590|}{|-10|}$

$= -\frac{21590}{10}$

$= -2159$

(viii) $\frac{0}{-135}$

$= 0.$

Solution 2:

(i) $296 \div -148 = -\frac{|296|}{|-148|} = -\frac{|296|}{|148|} = -\frac{296}{148} = -2$

$\therefore 296 \div (-2) = -148$

(ii) $-88 \div 11 = -\frac{|-88|}{|11|} = -\frac{|88|}{|11|} = -\frac{88}{11} = -8$

$\therefore -88 \div -8 = 11$

(iii) $84 \div 12 = \frac{|84|}{|12|} = \frac{84}{12} = 7$

$\therefore 84 \div 7 = 12$

(iv) $25 \times (-5) = -125$

$\therefore -125 \div -5 = 25$

(v) $156 \times (-2) = -312$

$\therefore -312 \div 156 = -2$

(vi) $567 \times (-1) = -567$

$\therefore -567 \div 567 = -1$

Solution 3:

Solution - 03

(i) True
(ii) True
(iii) False
(iv) False
(v) False.
(vi) True

Exercise 1.3

Solution 1:

Solution-01.

$36 \div 6 + 3 = 36 \div 9$

$= \frac{36}{9}$

$= \frac{|36|}{|9|}$

$= 4.$

Solution 2:

Solution-02:-

$24 + 15 \div 3 = 39 \div 3$

$= \frac{|39|}{|3|}$

$= 13.$

Solution 3:

Solution-03:-

$120 - 20 \div 4 = 100 \div 4$

$= \frac{[100]}{[4]}$

$= 25.$

$\therefore 120 - 20 \div 4 = 25.$

Solution 4:

Solution-04:-

$32 - (3 \times 5) + 4 = 32 - 15 + 4$

$= 17 + 4$

$= 21.$

Solution 5:

Solution-05:-

$3 - (5 - 6 \div 3) = 3 - (5 - 2)$

$= 3 - 3$

$= 0.$

Solution 6:

Solution-06:-

$21 - 12 \div 3 \times 2 = 21 - \frac{12}{3} \times 2$

$= 21 - 4 \times 2$

$= 21 - 8$

$= 13.$

Solution 7:

solution-07:-

$16 + 8 \div 4 - 2 \times 3$

$= 16 + 2 - 6$

$= 18 - 6$

$= 12$

$\therefore 16 + 8 \div 4 - 2 \times 3 = 12.$

Solution 8:

Solution-08:-

$28 - 5 \times 6 + 2 = 28 - (5 \times 6) + 2$

$= 28 - 30 + 2$

$= 30 - 30$

$= 0.$

Solution 9:

Solution-09:-

$(-20) \times (-1) + (-28) \div 7 = 20 + \frac{[-28]}{[7]}$

$= 20 - \frac{28}{7}$

$= 20 - 4$

$= 16.$

Solution 10:

Solution-10:-

$(-2)+(-8)\div(-4) = -2+\frac{|-8|}{|-4|}$

$= -2+2$

$= 0.$

Solution 11:

Solution-11:-

$-15+4\div(5-3) = -15+4\div 2$

$= -15+2$

$= -13$

$\therefore -15+4\div(5-3) = -13.$

Solution 12:

Solution-12:-

$(-40)\times(-1)+(-28)\div 7 = 40+(-4)$

$= 40-4$

$= 36.$

Solution 13:

Solution-13:-

$(-3)+(-8)\div(-4)-2\times(-2) = (-3)+\frac{(-8)}{(-4)}-2\times(-2)$

$= -3+2+4$

$= 6-3$

$= 3.$

Solution 14:

Solution-14:-

$(-3)\times(-4)\div(-2)+(-1) = 12\div(-2)+(-1)$

$= -6-1$

$= -7$

$\therefore (-3)\times(-4)\div(-2)+(-1) = -7.$

Exercise 1.4

Solution 1:

Exercise-1.4

Solution-01:-

$3-(5-6\div 3)$

$= 3-[5-2]$

$= 3-3$

$= 0.$

$3-(5-6\div 3) = 0$

Solution 2:

Solution -02:-

$-25+14\div(5-3) = -25+14\div(2)$

$= -25+\frac{14}{2}$

$= -25+7$

$= -18$

$\therefore -25+14\div(5-3) = -18$

Solution 3:

Solution-03:-

$25-\frac{1}{2}\{5+4-(3+2-\overline{1+3})\}$

$= 25-\frac{1}{2}\{5+4-(5-4)\}$

$= 25-\frac{1}{2}\{5+4-1\}$

$= 25-\frac{1}{2}\{8\} \quad = 25-4 \quad = 21.$

$\therefore 25-\frac{1}{2}\{5+4-(3+2-\overline{1+3})\} = 21.$

Solution 4:

Solution-04:-

$27-[38-\{46-(15-\overline{13-2})\}]$

$= 27-[38-\{46-(15-11)\}]$

$= 27-[38-\{46-4\}]$

$= 27-[38-42]$

$= 27-[-4]$

$= 27+4$

$= 31.$

$\therefore 27-[38-\{46-(15-\overline{13-2})\}] = 31.$

Solution 5:

Solution-05:-

$36-[18-\{14-(15-4\div2\times2)\}]$

$= 36-[18-\{14-(11\div2\times2)\}]$

$= 36-[18-\{14-\frac{11}{2}\times2\}]$

$= 36-[18-\{14-11\}]$

$= 36-[18-3]$

$= 36-15$

$= 21.$

$36-[18-\{14-(15-4\div2\times2)\}] = 21.$

Solution 6:

Solution -06:-

we have,

$45-[38-\{60\div3-(6-9\div3)\div3\}]$

$=45-[38-\{20-(6-3)\div3\}]$

$=45-[38-\{20-3\div3\}]$

$=45-[38-\{20-1\}]$

$=45-[38-19]$

$=45-[38-19]$

$=45-[19]$

$=45-19=26$.

$\therefore 45-[38-\{60\div3-(36-9\div3)\div3\}]=26$

Solution 7:

Solution -07:-

we have,

$23-[23-\{23-(23-\overline{23-23})\}]$

$=23-[23-\{23-(23-0)\}]$

$=23-[23-\{23-23\}]$

$=23-[23-0]$

$=23-[23]$

$=23-23$

$=0$.

$\therefore 23-[23-\{23-(23-\overline{23-23})\}]=0$.

Solution 8:

Solution -08 :-

$2550-[510-\{270-(90-\overline{80+70})\}]$

$=2550-[510-\{270-(90-150)\}]$

$=2550-[510-\{270-(-60)\}]$

$=2550-[510-330]$ $\{270-(-60)=270+60=330\}$

$=2550-[180]$

$=2550-180$

$=2370$

$\therefore 2550-[510-\{270-(90-\overline{80+90})\}]=2370$.

Solution 9:

Solution-09:-

$4+\frac{1}{5}[\{-10\times(25-\overline{13-3})\}\div(-5)]$

$=4+\frac{1}{5}[\{-10\times(25-10)\}\div(-5)]$

$=4+\frac{1}{5}[\{-10\times(15)\}\div(-5)]$

$=4+\frac{1}{5}[\{-150\}\div(-5)]$

$=4+\frac{1}{5}\{\frac{150}{5}\}$

$=4+\frac{1}{5}\{30\}$

$=4+6=10$

$\therefore 4+\frac{1}{5}[\{-10\times(25-\overline{13-3})\}\div(-5)]=10.$

Solution 10:

Solution-10:-

we have,

$22-\frac{1}{4}\{-5-(-48)\div(-16)\}$

$=22-\frac{1}{4}\{-5-\frac{(-48)}{(-16)}\}$

$=22-\frac{1}{4}\{-5-\frac{|48|}{|16|}\}$

$=22-\frac{1}{4}\{-5-\frac{48}{16}\}$

$=22-\frac{1}{4}\{-5-3\}$

$=22-\frac{1}{4}\{-8\}$

$=22+\frac{8}{4}=22+2=24.$

$\therefore 22-\frac{1}{4}\{-5-(-48)\div(-16)\}=24.$

Solution 11:

On applying the BODMAS rule, we get:

$63-(-3)\{-2-\overline{8-3}\}\div 3\{5+(-2)(-1)\}$

$=63-(-3)\{-2-5\}\div 3\{5+2\}$ (On simplifying vinculum)

$=63-(-3)(-7)\div 3\times 7$ (On simplifying braces)

$=63-(21\div 21)$

$=63-1$

$=62$

Solution 12:

Solution-12:-

$[29-(-2)\{6-(7-3)\}]\div[3\times\{5+(-3)\times(-2)\}]$

$=[29-(-2)\{6-4\}]\div[3\times\{5+(3\times 2)\}]$

$=[29-(-2)\{2\}]\div[3\times\{5+6\}]$

$=[29+4]\div[3\times\{11\}]$

$=33\div 33$

$=1.$

$[29-(-2)\{6-(7-3)\}]\div[3\times\{5+(-3)\times(-2)\}]=1.$

Solution 13:

Solution-13 :-

(i) Nine multiplied by the sum of two and five → $9(2+5)$

(ii) Twelve divided by the sum of one and three → $12 \div (1+3)$

(iii) Twenty divided by the difference of seven & two → $20 \div (7-2)$

(iv) Eight (8) Subtracted from the Product of two & three → $2 \times 3 - 8$.

(v). Fourty divided by one more than the sum of nine and ten → $[40 \div \{1 + (9+10)\}]$

(vi) Two multiplied by one less than the difference of nineteen and six → $2 \times \{(19-6) - 1\}$.