Integers
Exercise 1B

Solution 01

Answer :

(i) $16 \times 9 = 144$
(ii) $18 \times (-6) = -(18 \times 6) = -108$
(iii) $36 \times (-11) = -(36 \times 11) = -396$
(iv) $(-28) \times 14 = -(28 \times 14) = -392$
(v) $(-53) \times 18 = -(53 \times 18) = -954$
(vi) $(-35) \times 0 = 0$
(vii) $0 \times (-23) = 0$
(viii) $(-16) \times (-12) = 192$
(ix) $(-105) \times (-8) = 840$
(x) $(-36) \times (-50) = 1800$
(xi) $(-28) \times (-1) = 28$
(xii) $25 \times (-11) = -(25 \times 11) = -275$

Solution 02

Answer :

(i) $3 \times 4 \times (-5) = (12) \times (-5) = -60$
(ii) $2 \times (-5) \times (-6) = (-10) \times (-6) = 60$
(iii) $(-5) \times (-8) \times (-3) = (-5) \times (24) = -120$
(iv) $(-6) \times 6 \times (-10) = 6 \times (60) = 360$
(v) $7 \times (-8) \times 3 = 21 \times (-8) = -168$
(vi) $(-7) \times (-3) \times 4 = 21 \times 4 = 84$

Solution 03

(i) Since the number of negative integers in the product is even, the product will be positive.
(4) × (5) × (8) × (10) = 1600
(ii) Since the number of negative integers in the product is odd, the product will be negative.
−(6) × (5) × (7) × (2) × (3) = −1260
(iii) Since the number of negative integers in the product is even, the product will be positive.
(60) × (10) × (5) × (1) = 3000
(iv) Since the number of negative integers in the product is odd, the product will be negative.
−(30) × (20) × (5) = −3000
(v) Since the number of negative integers in the product is even, the product will be positive.
$(-3)^6$ = 729
(vi) Since the number of negative integers in the product is odd, the product will be negative.
$(-5)^5$ = −3125
(vii) Since the number of negative integers in the product is even, the product will be positive.
$(-1)^{200}$= 1
(viii) Since the number of negative integers in the product is odd, the product will be negative.
$(-1)^{171}$ = −1

Solution 04

Answer :

Multiplying 90 negative integers will yield a positive sign as the number of integers is even.
Multiplying any two or more positive integers always gives a positive integer.
The product of both(the above two cases) the positive and negative integers is also positive.
Therefore, the final product will have a positive sign.

Solution 05

Multiplying 103 negative integers will yield a negative integer, whereas 65 positive integers will give a positive integer.
The product of a negative integer and a positive integer is a negative integer.

Solution 06

Answer :

(i) (−8) × (9 + 7) [using the distributive law]
= (−8) × 16 = −128

(ii) 9 × (−13 + (−7)) [using the distributive law]
= 9 × (−20) = −180

(iii) 20 × (−16 + 14) [using the distributive law]
= 20 × (−2) = −40

(iv) (−16) × (−15 + (−5)) [using the distributive law]
= (−16) × (−20) = 320

(v) (−11) × (−15 +(−25)) [using the distributive law]
= (−11) × (−40)
= 440

(vi) (−12) × (10 + 5) [using the distributive law]
= (−12) × 15 = −180

(vii) (−16 + (−4)) × (−8) [using the distributive law]
= (−20) × (−8) = 160

(viii) (−26) × (72 + 28) [using the distributive law]
= (−26) ×100 = −2600

Solution 07

Answer :

(i) $(-6) \times (x) = 6$
x = 6-6 = -66= -1

Thus, x = (−1)

(ii) 1 [∵ Multiplicative identity]
(iii) (−8) [∵ Commutative law]
(iv) 7 [∵ Commutative law]
(v) (−5) [∵ Associative law]
(vi) 0 [∵ Property of zero]

Solution 08

Answer :

We have 5 marks for correct answer and (−2) marks for an incorrect answer.

Now, we have the following:

(i) Ravi's score = $4 \times 5 + 6 \times (-2)$
$= 20 + (-12) = 8$

(ii) Reenu's score = $5 \times 5 + 5 \times (-2)$
$= 25 - 10 = 15$

(iii) Heena's score = $2 \times 5 + 5 \times (-2)$
$= 10 - 10 = 0$

Solution 09

Answer :

(i) True.
(ii) False. Since the number of negative signs is even, the product will be a positive integer.
(iii) True. The number of negative signs is odd.
(iv) False. $a \times (-1) = -a$, which is not the multiplicative inverse of a.
(v) True. $a \times b = b \times a$
(vi) True. $(a \times b) \times c = a \times (b \times c)$
(vii) False. Every non-zero integer a has a multiplicative inverse 1a, which is not an integer.