

EXERCISE 1A

1. Evaluate:

(i) $427 \times 8 + 2 \times 427$

(ii) $394 \times 12 + 394 \times (-2)$

(iii) $558 \times 27 + 3 \times 558$

Solution:

(i) $427 \times 8 + 2 \times 427$

Using Distributive property

$$= 427 \times (8 + 2)$$

By further calculation

$$= 427 \times 10$$

$$= 4270$$

(ii) $394 \times 12 + 394 \times (-2)$

Using Distributive property

$$= 394 \times (12 - 2)$$

By further calculation

$$= 394 \times 10$$

$$= 3940$$

(iii) $558 \times 27 + 3 \times 558$

Using Distributive property

$$= 558 \times (27 + 3)$$

By further calculation

$$= 558 \times 30$$

$$= 16740$$

2. Evaluate:

(i) $673 \times 9 + 673$

(ii) $1925 \times 101 - 1925$

Solution:

(i) $673 \times 9 + 673$

Using Distributive property

$$= 673 \times (9 + 1)$$

By further calculation

$$= 673 \times 10$$

$$= 6730$$

(ii) $1925 \times 101 - 1925$

Using Distributive property

$$= 1925 \times (101 - 1)$$

By further calculation

$$= 1925 \times 100$$

$$= 192500$$

3. Verify:

(i) $37 \times \{8 + (-3)\} = 37 \times 8 + 37 \times (-3)$

$$(ii) (-82) \times \{(-4) + 19\} = (-82) \times (-4) + (-82) \times 19$$

$$(iii) \{7 - (-7)\} \times 7 = 7 \times 7 - (-7) \times 7$$

$$(iv) \{(-15) - 8\} \times -6 = (-15) \times (-6) - 8 \times (-6)$$

Solution:

$$(i) 37 \times \{8 + (-3)\} = 37 \times 8 + 37 \times (-3)$$

$$\text{Consider LHS} = 37 \times \{8 + (-3)\}$$

It can be written as

$$= 37 \times \{8 - 3\}$$

By further calculation

$$= 37 \times \{5\}$$

$$= 185$$

$$\text{Similarly RHS} = 37 \times 8 + 37 \times (-3)$$

It can be written as

$$= 37 \times (8 - 3)$$

By further calculation

$$= 37 \times 5$$

$$= 185$$

Therefore, LHS = RHS.

$$(ii) (-82) \times \{(-4) + 19\} = (-82) \times (-4) + (-82) \times 19$$

$$\text{Consider LHS} = (-82) \times \{(-4) + 19\}$$

It can be written as

$$= (-82) \times \{-4 + 19\}$$

By further calculation

$$= (-82) \times \{15\}$$

$$= -1230$$

$$\text{Similarly RHS} = (-82) \times (-4) + (-82) \times 19$$

It can be written as

$$= (-82) \times (-4 + 19)$$

By further calculation

$$= -82 \times 15$$

$$= -1230$$

Therefore, LHS = RHS.

$$(iii) \{7 - (-7)\} \times 7 = 7 \times 7 - (-7) \times 7$$

$$\text{Consider LHS} = \{7 - (-7)\} \times 7$$

It can be written as

$$= \{7 + 7\} \times 7$$

By further calculation

$$= \{14\} \times 7$$

$$= 98$$

$$\text{Similarly RHS} = 7 \times 7 - (-7) \times 7$$

It can be written as

$$= 7 \times 7 + 7 \times 7$$

By further calculation

$$= 7 \times (7 + 7)$$

$$= 7 \times 14$$

$$= 98$$

Therefore, LHS = RHS.

$$(iv) \{(-15) - 8\} \times -6 = (-15) \times (-6) - 8 \times (-6)$$

$$\text{Consider LHS} = \{(-15) - 8\} \times -6$$

It can be written as

$$= \{-15 - 8\} \times -6$$

By further calculation

$$= \{-23\} \times -6$$

$$= 138$$

$$\text{Similarly RHS} = (-15) \times (-6) - 8 \times (-6)$$

It can be written as

$$= -6 \times (-15 - 8)$$

By further calculation

$$= -6 \times -23$$

$$= 138$$

Therefore, LHS = RHS.

4. Evaluate:

(i) 15×8

(ii) $15 \times (-8)$

(iii) $(-15) \times 8$

(iv) $(-15) \times -8$

Solution:

(i) $15 \times 8 = 120$

(ii) $15 \times (-8) = -120$

(iii) $(-15) \times 8 = -120$

(iv) $(-15) \times -8 = 120$

5. Evaluate:

(i) $4 \times 6 \times 8$

(ii) $4 \times 6 \times (-8)$

(iii) $4 \times (-6) \times 8$

(iv) $(-4) \times 6 \times 8$

(v) $4 \times (-6) \times (-8)$

(vi) $(-4) \times (-6) \times 8$

(vii) $(-4) \times 6 \times (-8)$

(viii) $(-4) \times (-6) \times (-8)$

Solution:

(i) $4 \times 6 \times 8 = 192$

(ii) $4 \times 6 \times (-8) = -192$

It has one negative factor

(iii) $4 \times (-6) \times 8 = -192$

It has one negative factor

(iv) $(-4) \times 6 \times 8 = -192$

It has one negative factor

(v) $4 \times (-6) \times (-8) = 192$

It has two negative factors

(vi) $(-4) \times (-6) \times 8 = 192$

It has two negative factors

(vii) $(-4) \times 6 \times (-8) = 192$

It has two negative factors

(viii) $(-4) \times (-6) \times (-8) = -192$

It has three negative factors

6. Evaluate:

(i) $2 \times 4 \times 6 \times 8$

(ii) $2 \times (-4) \times 6 \times 8$

(iii) $(-2) \times 4 \times (-6) \times 8$

(iv) $(-2) \times (-4) \times 6 \times (-8)$

(v) $(-2) \times (-4) \times (-6) \times (-8)$

Solution:

(i) $2 \times 4 \times 6 \times 8 = 384$

(ii) $2 \times (-4) \times 6 \times 8 = -384$

The number of negative integer in the product is odd

(iii) $(-2) \times 4 \times (-6) \times 8 = 384$

The number of negative integer in the product is even

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

The number of negative integer in the product is odd

(v) $(-2) \times (-4) \times (-6) \times (-8) = 384$

The number of negative integer in the product is even

7. Determine the integer whose product with '-1' is:

(i) -47

(ii) 63

(iii) -1

(iv) 0

Solution:

(i) $-47 = -1 \times 47$

Therefore, the integer is 47.

(ii) $63 = -1 \times -63$

Therefore, the integer is -63 .

(iii) $-1 = -1 \times 1$

Therefore, the integer is 1 .

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

Therefore, the integer is 0 .

8. Eighteen integers are multiplied together. What will be the sign of their product, if:

(i) 15 of them are negative and 3 are positive?

(ii) 12 of them are negative and 6 are positive?

(iii) 9 of them are positive and the remaining are negative?

(iv) all are negative?

Solution:

(i) Out of 18 integers, 15 of them are negative which is odd number. Therefore, the sign of product is negative.

(ii) Out of 18 integers, 12 of them are negative which is even number. Therefore, the sign of product is positive.

(iii) Out of 18 integers, 9 of them are negative which is odd number. Therefore, the sign of product is negative.

(iv) All are negative which is even number. Therefore, sign of product is positive.

9. Find which is greater?

(i) $(8 + 10) \times 15$ or $8 + 10 \times 15$

(ii) $12 \times (6 - 8)$ or $12 \times 6 - 8$

(iii) $\{(-3) - 4\} \times (-5)$ or $(-3) - 4 \times (-5)$

Solution:

(i) $(8 + 10) \times 15$ or $8 + 10 \times 15$

We know that

$$(8 + 10) \times 15 = 18 \times 15 = 270$$

$$8 + 10 \times 15 = 8 + 150 = 158$$

Therefore, $(8 + 10) \times 15 > 8 + 10 \times 15$.

(ii) $12 \times (6 - 8)$ or $12 \times 6 - 8$

We know that

$$12 \times (6 - 8) = 12 \times (-2) = -24$$

$$12 \times 6 - 8 = 72 - 8 = 64$$

Therefore, $12 \times (6 - 8) < 12 \times 6 - 8$.

(iii) $\{(-3) - 4\} \times (-5)$ or $(-3) - 4 \times (-5)$

We know that

$$\{(-3) - 4\} \times (-5) = \{-3 - 4\} \times (-5)$$

By further calculation

$$= -7 \times (-5) = 35$$

Similarly

$$(-3) - 4 \times (-5) = -3 + 20 = 17$$

Therefore, $\{(-3) - 4\} \times (-5) > (-3) - 4 \times (-5)$

10. State, true or false:

(i) product of two different integers can be zero.

(ii) product of 120 negative integers and 121 positive integers is negative.

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

(iv) $(b - c) \times a = b - c \times a$.

Solution:

(i) True.

Example: $5 \times 0 = 0, 0 \times -8 = 0$

(ii) False. Here 120 integers are even numbers so the product will be positive and for 121 integers are positive in numbers. So the product is positive.

(iii) False.

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

$ab + ac \neq ab + c$

(iv) False.

$(b - c) \times a \neq b - c \times a$

$ab - ac \neq b - ca$



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