EXERCISE 5.1

1. Write the opposite of each of the following:
   (i) Increase in population
   (ii) Depositing money in a bank
   (iii) Earning money
   (iv) Going North
   (v) Gaining a weight of 4kg
   (vi) A loss of Rs 1000
   (vii) 25
   (viii) – 15

Solution:

(i) The opposite of Increase in population is Decrease in population.

(ii) The opposite of Depositing money in a bank is Withdrawing money from a bank.

(iii) The opposite of earning money is Spending money.

(iv) The opposite of Going North is Going South.

(v) The opposite of gaining a weight of 4kg is losing a weight of 4kg.

(vi) The opposite of a loss of Rs 1000 is a gain of Rs 1000.

(vii) The opposite of 25 is – 25.

(viii) The opposite of – 15 is 15.

2. Indicate the following by using integers:
   (i) 25° above zero
   (ii) 5° below zero
   (iii) A profit of Rs 800
   (iv) A deposit of Rs 2500
   (v) 3km above sea level
   (vi) 2km below level

Solution:

(i) 25° above zero is + 25°.

(ii) 5° below zero is - 5°.

(iii) A profit of Rs 800 is + 800.

(iv) A deposit of Rs 2500 is + 2500.

(v) 3km above sea level is + 3.

(vi) 2km below level is – 2.
3. Mark the following integers on a number line:
   (i) 7
   (ii) -4
   (iii) 0

Solution:
The following integers are marked on a number line as given below:

4. Which number in each of the following pairs is smaller?
   (i) 0, -4
   (ii) -3, 12
   (iii) 8, 13
   (iv) -15, -27

Solution:
(i) 0 is greater than the negative integers
So we get – 4 < 0
Therefore, -4 is smaller.

(ii) 12 is greater than -3 on a number line
So we get
-3 < 12
Therefore, -3 is smaller.

(iii) 13 is greater than 8 on a number line
So we get 8 < 13
Therefore, 8 is smaller.

(iv) – 15 is greater than – 27 on a number line
So we get – 27 < - 15
Therefore, -27 is smaller.

5. Which number in each of the following pairs is larger?
   (i) 3, -4
   (ii) – 12, - 8
   (iii) 0, 7
   (iv) 12, - 18

Solution:
(i) We know that 3 is larger than – 4 on a number line
So we get 3 > - 4
Therefore, 3 is larger.

(ii) We know that – 8 is larger than – 12 on a number line
So we get $-8 > -12$
Therefore, $-8$ is larger.

(iii) We know that $7$ is larger than $0$ on a number line
So we get $7 > 0$
Therefore, $7$ is larger.

(iv) We know that $12$ is larger than $-18$ on a number line
So we get $12 > -18$
Therefore, $12$ is larger.

6. Write all integers between:
(i) $-7$ and $3$
(ii) $-2$ and $2$
(iii) $-4$ and $0$
(iv) $0$ and $3$

Solution:

(i) The integers between $-7$ and $3$ are
$-6, -5, -4, -3, -2, -1, 0, 1, 2$

(ii) The integers between $-2$ and $2$ are
$-1, 0, 1$.

(iii) The integers between $-4$ and $0$ are
$-3, -2, -1$

(iv) The integers between $0$ and $3$ are
$1, 2$.

7. How many integers are between?
(i) $-4$ and $3$
(ii) $5$ and $12$
(iii) $-9$ and $-2$
(iv) $0$ and $5$

Solution:

(i) The integers between $-4$ and $3$ are
$-3, -2, -1, 0, 1, 2$
Therefore, number of integers between $-4$ and $3$ are $6$.

(ii) The integers between $5$ and $12$ are
$6, 7, 8, 9, 10, 11$
Therefore, number of integers between $5$ and $12$ are $6$.

(iii) The integers between $-9$ and $-2$ are
$-8, -7, -6, -5, -4, -3$
Therefore, number of integers between $-9$ and $-2$ are $6$.

(iv) The integers between $0$ and $5$ are
Therefore, number of integers between 0 and 5 are 4.

8. Replace * in each of the following by < or > so that the statement is true:
   (i) 2 * 5
   (ii) 0 * 3
   (iii) 0 * -7
   (iv) -18 * 15
   (v) -235 * -532
   (vi) -20 * 20

   Solution:
   (i) 2 < 5
   (ii) 0 < 3
   (iii) 0 > -7
   (iv) -18 < 15
   (v) -235 > -532
   (vi) -20 < 20

9. Write the following integers in increasing order:
   (i) -8, 5, 0, -12, 1, -9, 15
   (ii) -106, 107, -320, -7, 185

   Solution:
   (i) -8, 5, 0, -12, 1, -9, 15 can be written in increasing order as -12, -9, -8, 0, 1, 5, 15
   (ii) -106, 107, -320, -7, 185 can be written in increasing order as -320, -106, -7, 107, 185.

10. Write the following integers in decreasing order:
   (i) -15, 0, -2, -9, 7, 6, -5, 8
   (ii) -154, 123, -205, -89, -74

   Solution:
   (i) -15, 0, -2, -9, 7, 6, -5, 8 can be written in decreasing order as 8, 7, 6, 0, -2, -5, -9, -15
   (ii) -154, 123, -205, -89, -74 can be written in decreasing order as 123, -74, -89, -154, -205

11. Using the number line, write the integer which is:
   (i) 2 more than 3
   (ii) 5 less than 3
   (iii) 4 more than –9
Solution:

(i) 2 more than 3
In order to get the integer 2 more than 3
We draw a number line from 3 and proceed 2 units to the right to obtain 5

Therefore, 2 more than 3 is 5.

(ii) 5 less than 3
In order to get the integer 5 less than 3
We draw a number line from 3 and proceed 5 units to the left to obtain –2

Therefore, 5 less than 3 is –2.

(iii) 4 more than –9
In order to get the integer 4 more than –9
We draw a number line from –9 and proceed 4 units to the right to obtain -5

Therefore, 4 more than –9 is –5.

12. Write the absolute value of each of the following:
   (i) 14
   (ii) –25
   (iii) 0
   (iv) –125
   (v) –248
   (vi) a – 7, if a is greater than 7
   (vii) a – 7, if a - 2 is less than 7
   (viii) a + 4, if a is greater than -4
   (ix) a + 4 if a is less than –4
   (x) |3|
   (xi) |5|
   (xii) |12 – 5|

Solution:

(i) The absolute value of 14 is
|14| = 14

(ii) The absolute value of – 25 is
\(|-25| = 25\)

(iii) The absolute value of 0 is
\(|0| = 0\)

(iv) The absolute value of – 125 is
\(|-125| = 125\)

(v) The absolute value of – 248 is
\(|-248| = 248\)

(vi) The absolute value of \(a - 7\), if \(a\) is greater than 7 is
\(|a - 7| = a - 7\) where \(a > 7\)

(vii) The absolute value of \(a - 7\), if \(a - 2\) is less than 7 is
\(|a - 7| = -(a - 7)\) where \(a - 2 < 7\)

(viii) The absolute value of \(a + 4\), if \(a\) is greater than -4 is
\(|a + 4| = a + 4\) where \(a > -4\)

(ix) The absolute value of \(a + 4\) if \(a\) is less than -4 is
\(|a + 4| = -(a + 4)\) where \(a < -4\)

(x) The absolute value of \(|-3|\) is
\(|-3| = 3\)

(xi) The absolute value of \(|-5|\) is
\(|-5| = 5\)

(xii) The absolute value of \(|12 - 5|\) is
\(|12 - 5| = 7\)

13. (i) Write 4 negative integers less than – 10.
(ii) Write 6 negative integers just greater than – 12.
Solution:

(i) The 4 negative integers less than – 10 are
- 11, - 12, - 13, - 14

(ii) The 6 negative integers just greater than – 12 are
-11, - 10, - 9, - 8, - 7, - 6

14. Which of the following statements are true?
(i) The smallest integer is zero.
(ii) The opposite of zero is zero.
(iii) Zero is not an integer.
(iv) 0 is larger than every negative integer.
(v) The absolute value of an integer is greater than the integer.
(vi) A positive integer is greater than its opposite.
(vii) Every negative integer is less than every natural number.
(viii) 0 is the smallest positive integer.
Solution:

(i) False. The smallest integer is 1.

(ii) True. 0 is neither positive nor negative so the opposite is 0.

(iii) False. Zero is an integer which is neither positive nor negative.

(iv) True. 0 is larger than –1.

(v) False. The absolute value of an integer is the numerical value.

(vi) True. 3 is greater than –3.

(vii) True. –3 is less than 1.

(viii) False. 1 is the smallest positive integer.
1. Draw a number line and represent each of the following on it:

(i) \(5 + (-2)\)
(ii) \((-9) + 4\)
(iii) \((-3) + (-5)\)
(iv) \(6 + (-6)\)
(v) \((-1) + (-2) + 2\)
(vi) \((-2) + 7 + (-9)\)

Solution:

(i) \(5 + (-2)\)

From 0 move towards right of first five units to obtain + 5
So the second number is – 2 so move 2 units towards left of + 5 we get + 3

Therefore, \(5 + (-2) = 3\).

(ii) \((-9) + 4\)

From 0 move towards left of nine units to obtain – 9
So the second number is 4 so move 4 units towards right of – 9 we get – 5

Therefore, \((-9) + 4 = -5\).

(iii) \((-3) + (-5)\)

From 0 move towards left of three units to obtain – 3
So the second number is – 5 so move 5 units towards left of – 3 we get – 8

Therefore, \((-3) + (-5) = -8\).
(iv) $6 + (-6)$

From zero move towards right of six units to obtain 6
So the second number is $-6$ so move 6 units towards left of 6 we get 0

Therefore, $6 + (-6) = 0$.

(v) $(-1) + (-2) + 2$

From zero move towards left of one unit to obtain $-1$
So the second number is $-2$ so move 2 units towards left of $-1$ we get $-3$
The third number is 2 so move 2 units towards right of $-3$ we get $-1$

Therefore, $(-1) + (-2) + 2 = -1$.

(vi) $(-2) + 7 + (-9)$

From zero move towards left of two units to obtain $-2$
So the second number is 7 so move 7 units towards right of $-2$ we get 5
The third number is $-9$ so move 9 units towards left of 5 we get $-4$

Therefore, $(-2) + 7 + (-9) = -4$.

2. Find the sum of
   (i) $-557$ and $488$
   (ii) $-522$ and $-160$
   (iii) $2567$ and $-325$
   (iv) $-10025$ and $139$
   (v) $2547$ and $-2548$
   (vi) $2884$ and $-2884$
RD Sharma Solutions for Class 6 Maths Chapter 5 – Negative Numbers and Integers

Solution:

(i) -557 and 488
We get
-557 + 488
It can be written as
\(|-557| - |488| = 557 - 488 = 69.\)

(ii) -522 and -160
We get
-522 + (-160)
It can be written as
-522 - 160 = -682

(iii) 2567 and -325
We get
2567 + (-325)
It can be written as
2567 - 325 = 2242

(iv) -10025 and 139
We get
-10025 + 139
It can be written as
-10025 + 139 = -9886

(v) 2547 and -2548
We get
2547 + (-2548)
It can be written as
2547 - 2548 = -1

(vi) 2884 and -2884
We get
2884 + (-2884)
It can be written as
2884 - 2884 = 0
EXERCISE 5.3

1. Find the additive inverse of each of the following integers:
   (i) 52
   (ii) −176
   (iii) 0
   (iv) 1

Solution:

(i) The additive inverse of 52 is −52.

(ii) The additive inverse of −176 is 176.

(iii) The additive inverse of 0 is 0.

(iv) The additive inverse of 1 is −1.

2. Find the successor of each of the following integers:
   (i) −42
   (ii) −1
   (iii) 0
   (iv) −200
   (v) −99

Solution:

(i) The successor of −42 = −42 + (−1)
We get
= 1 − 42 = −41

(ii) The successor of −1 is
−1 + 1 = 0

(iii) The successor of 0 is
0 + 1 = 1

(iv) The successor of −200 is
−200 + 1 = −199

(v) The successor of −99 is
−99 + 1 = −98

3. Find the predecessor of each of the following integers:
   (i) 0
   (ii) 1
   (iii) −1
   (iv) −125
   (v) −1000

Solution:

(i) The predecessor of 0 is
0 – 1 = -1

(ii) The predecessor of 1 is
1 – 1 = 0

(iii) The predecessor of -1 is
-1 – 1 = -2

(iv) The predecessor of –125 is
-125 – 1 = -126

(v) The predecessor of 1000 is
1000 – 1 = 999

4. Which of the following statements are true?
   (i) The sum of a number and its opposite is zero.
   (ii) The sum of two negative integers is a positive integer.
   (iii) The sum of a negative integer and a positive integer is always a negative integer.
   (iv) The successor of –1 is 1.
   (v) The sum of three different integers can never be zero.

Solution:

(i) True. 1 – 1 = 0

(ii) False. -1 – 1 = -2

(iii) False. –2 + 3 = 1

(iv) False. The successor of –1 is 0.

(v) False. 1 + 2 – 3 = 0

5. Write all integers whose absolute values are less than 5.

Solution:

The integers whose absolute values are less than 5 are
-4, -3, -2, -1, 0, 1, 2, 3, 4

6. Which of the following is false:
   (i) |4 + 2| = |4| + |2|
   (ii) |2 – 4| = |2| + |4|
   (iii) |4 – 2| = |4| - |2|
   (iv) |-2 + (-4)| = |-2| + |-4|

Solution:

(i) True.

(ii) False.

(iii) True.
(iv) True.

7. Complete the following table:

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<th>-2</th>
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</tbody>
</table>

From the above table:

(i) Write all the pairs of integers whose sum is 0.
(ii) Is \((-4) + (-2) = (-2) + (-4)\)?
(iii) Is \(0 + (-6) = -6\)?

Solution:

(i) The pairs of integers whose sum is 0 are
(6, -6), (4, -4), (3, -3), (2, -2), (1, -1), (0, 0)

(ii) Yes. By using commutativity of addition \((-4) + (-2) = (-2) + (-4)\)

(iii) Yes. By using additive identity \(0 + (-6) = -6\).

8. Find an integer x such that

(i) \(x + 1 = 0\)
(ii) \(x + 5 = 0\)
(iii) \(-3 + x = 0\)
(iv) \(x + (-8) = 0\)
(v) \(7 + x = 0\)
(vi) \(x + 0 = 0\)

Solution:

(i) \(x + 1 = 0\)
Subtracting 1 on both sides
\[ x + 1 - 1 = 0 - 1 \]
We get
\[ x = -1 \]

(ii) \( x + 5 = 0 \)
By subtracting 5 on both sides
\[ x + 5 - 5 = 0 - 5 \]
So we get
\[ x = -5 \]

(iii) \( -3 + x = 0 \)
By adding 3 on both sides
\[ -3 + x + 3 = 0 + 3 \]
So we get
\[ x = 3 \]

(iv) \( x + (-8) = 0 \)
By adding 8 on both sides
\[ x - 8 + 8 = 0 + 8 \]
So we get
\[ x = 8 \]

(v) \( 7 + x = 0 \)
By subtracting 7 on both sides
\[ 7 + x - 7 = 0 - 7 \]
So we get
\[ x = -7 \]

(vi) \( x + 0 = 0 \)
So we get
\[ x = 0 \]
EXERCISE 5.4

1. Subtract the first integer from the second in each of the following:
   (i) 12, -5
   (ii) -12, 8
   (iii) -225, -135
   (iv) 1001, 101
   (v) -812, 3126
   (vi) 7560, -8
   (vii) -3978, -4109
   (viii) 0, -1005

   Solution:

   (i) 12, -5
   So by subtracting the first integer from the second
   -5 – 12 = -17

   (ii) -12, 8
   So by subtracting the first integer from the second
   8 – (-12) = 8 + 12 = 20

   (iii) -225, -135
   So by subtracting the first integer from the second
   -135 – (-225) = 225 – 135 = 90

   (iv) 1001, 101
   So by subtracting the first integer from the second
   101 – 1001 = -900

   (v) -812, 3126
   So by subtracting the first integer from the second
   3126 – (-812) = 3126 + 812 = 3938

   (vi) 7560, -8
   So by subtracting the first integer from the second
   -8 – 7560 = -7568

   (vii) -3978, -4109
   So by subtracting the first integer from the second
   -4109 – (-3978) = -4109 + 3978 = -131

   (viii) 0, -1005
   So by subtracting the first integer from the second
   -1005 – 0 = -1005

2. Find the value of:
   (i) -27 – (-23)
   (ii) -17 – 18 – (-35)
   (iii) -12 – (-5) – (-125) + 270
   (iv) 373 + (-245) + (-373) + 145 + 3000
(v) \( 1 + (-475) + (-475) + (-475) + (-475) + 1900 \)

Solution:

(i) \(-27 - (-23)\)
So we get
\[ = -27 + 23 \]
On further calculation
\[ = 23 - 27 \]
We get
\[ = -4 \]

(ii) \(-17 - 18 - (-35)\)
So we get
\[ = -35 + 35 \]
On further calculation
\[ = 0 \]

(iii) \(-12 - (-5) - (-125) + 270\)
So we get
\[ = -12 + 5 + 125 + 270 \]
On further calculation
\[ = 400 - 12 \]
We get
\[ = 388 \]

(iv) \(373 + (-245) + (-373) + 145 + 3000\)
So we get
\[ = 373 - 245 - 373 + 145 + 3000 \]
On further calculation
\[ = 3145 + 373 - 373 - 245 \]
We get
\[ = 3145 - 245 \]
By subtraction
\[ = 2900 \]

(v) \(1 + (-475) + (-475) + (-475) + (-475) + 1900\)
So we get
\[ = 1 - 950 - 950 + 1900 \]
On further calculation
\[ = 1900 + 1 - 1900 \]
We get
\[ = 1 \]

(vi) \((-1) + (-304) + 304 + 304 + (-304) + 1\)
So we get
\[ = -1 + 1 - 304 + 304 - 304 + 304 \]
On further calculation
\[ = 0 \]
3. Subtract the sum of \(-5020\) and \(2320\) from \(-709\).
Solution:
We know that the sum of \(5020\) and \(2320\) is 
\[-5020 + 2320 \]
It can be written as 
\[= 2320 – 5020\]
So we get
\[= -2700\]
Subtracting \(-709\) we get
\[= (-2700) + (-709)\]
On further calculation
\[= -709 - (-2700)\]
We get
\[= -709 + 2700\]
By subtraction
\[= 1991\]

4. Subtract the sum of \(-1250\) and \(1138\) from the sum of \(1136\) and \(-1272\).
Solution:
We know that the sum of \(-1250\) and \(1138\) is
\[-1250 + 1138 \]
It can be written as
\[= 1138 – 1250\]
So we get
\[= -112\]
We know that the sum of \(1136\) and \(-1272\) is
\[1136 – 1272 = -136\]
So we get
\[-136 - (-112) = -136 + 112 = -24\]

5. From the sum of \(233\) and \(-147\), subtract \(-284\).
Solution:
We know that the sum of \(233\) and \(-147\) is
\[233 – 147 = 86\]
Subtracting \(-284\) we get
\[86 – (-284) = 86 + 284 = 370\]

6. The sum of two integers is \(238\). If one of the integers is \(-122\), determine the other.
Solution:
It is given that
Sum of two integers = \(238\)
One of the integers = \(-122\)
So the other integer = \(-122\) + \(138\)
On further calculation
Other integer = \(238 + 122 = 360\)
7. The sum of two integers is – 223. If one of the integers is 172, find the other.
Solution:

It is given that
Sum of two integers = - 223
One of the integers = 172
So the other integer = - 223 – 172 = - 395

8. Evaluate the following:
(i) – 8 – 24 + 31 – 26 – 28 + 7 + 19 – 18 – 8 + 33
Solution:

(i) – 8 – 24 + 31 – 26 – 28 + 7 + 19 – 18 – 8 + 33
We get
= - 8 – 24 – 26 – 28 – 18 – 8 + 31 + 7 + 19 + 33
On further calculation
= - 32 – 26 – 28 + 38 + 19 + 33
It can be written as
= 38 – 32 – 26 – 28 + 33 – 26 + 19
So we get
= 6 – 26 – 28 + 7 + 19
By calculation
= 6 – 26 + 26
= 6 – 28
By subtraction
= - 22

We get
= - 46 + 33 + 33 + 21 + 24 + 25 – 26 – 14 – 34
On further calculation
= - 46 + 66 + 21 + 24 + 25 + (-74)
It can be written as
= - 46 + 66 + 70 – 74
So we get
= - 46 – 4 + 66
By calculation
= - 50 + 66
= 66 – 50
By subtraction
= 16

9. Calculate
1 – 2 + 3 – 4 + 5 – 6 + ……… + 15 – 16
Solution:

It can be written as
1 – 2 + 3 – 4 + 5 – 6 + 7 – 8 + 9 – 10 + 11 – 12 + 13 – 14 + 15 – 16
We get
10. Calculate the sum:
\[ 5 + (-5) + 5 + (-5) + \ldots \]
(i) if the number of terms is 10.
(ii) if the number of terms is 11.
Solution:
(i) if the number of terms is 10
We get
\[ 5 + (-5) + 5 + (-5) + 5 + (-5) + 5 + (-5) + 5 + (-5) \]
On further calculation
\[ = 5 - 5 + 5 - 5 + 5 - 5 + 5 - 5 + 5 - 5 = 0 \]
(ii) if the number of terms is 11
We get
\[ 5 + (-5) + 5 + (-5) + 5 + (-5) + 5 + (-5) + 5 + (-5) + 5 \]
On further calculation
\[ = 5 - 5 + 5 - 5 + 5 - 5 + 5 - 5 + 5 - 5 + 5 = 5 \]

11. Replace * by < or > in each of the following to make the statement true:
(i) \((-6) + (-9) < (-6) - (-9)\)
(ii) \((-12) - (-12) > (-12) + (-12)\)
(iii) \((-20) - (-20) > 20 - (-65)\)
(iv) \(28 - (-10) < (-16) - (-76)\)
Solution:
(i) \((-6) + (-9) < (-6) - (-9)\)
(ii) \((-12) - (-12) > (-12) + (-12)\)
(iii) \((-20) - (-20) > 20 - (-65)\)
(iv) \(28 - (-10) < (-16) - (-76)\)

12. If \(\triangle\) is an operation on integers such that \(a \triangle b = -a + b - (-2)\) for all integers \(a, b\). Find the value of
(i) \(4 \triangle 3\)
(ii) \((-2) \triangle (-3)\)
(iii) \(6 \triangle (-5)\)
(iv) \((-5) \triangle 6\)
Solution:
(i) \(4 \triangle 3\)
By substituting values in \(a \triangle b = -a + b - (-2)\)
We get
\[ 4 \triangle 3 = -4 + 3 - (-2) = 1 \]
(ii) \((-2) \triangle (-3)\)
By substituting values in $a \triangle b = -a + b - (-2)$
We get
$(-2) \triangle (-3) = -(-2) + (-3) - (-2) = 1$

(iii) $6 \triangle (-5)$
By substituting values in $a \triangle b = -a + b - (-2)$
We get
$6 \triangle (-5) = -6 + (-5) - (-2) = -9$

(iv) $(-5) \triangle 6$
By substituting values in $a \triangle b = -a + b - (-2)$
We get
$(-5) \triangle 6 = -(-5) + 6 - (-2) = 13$

13. If $a$ and $b$ are two integers such that $a$ is the predecessor of $b$. Find the value of $a - b$.
Solution:
It is given that $a$ is the predecessor of $b$
We can write it as
$a + 1 = b$
So we get
$a - b = -1$

14. If $a$ and $b$ are two integers such that $a$ is the successor of $b$. Find the value of $a - b$.
Solution:
It is given that $a$ is the successor of $b$
We can write it as
$a - 1 = b$
So we get
$a - b = 1$

15. Which of the following statements are true:
   (i) $-13 > -8 - (-2)$
   (ii) $-4 + (-2) < -2$
   (iii) The negative of a negative integer is positive.
   (iv) If $a$ and $b$ are two integers such that $a > b$, then $a - b$ is always a positive integer.
   (v) The difference of two integers is an integer.
   (vi) Additive inverse of a negative integer is negative.
   (vii) Additive inverse of a positive integer is negative.
   (viii) Additive inverse of a negative integer is positive.
Solution:
(i) False.
(ii) True.
(iii) True.
(iv) True.
(v) True.
(vi) False.
(vii) True.
(viii) True.

16. Fill in the blanks:
(i) \(-7 + \ldots = 0\)
(ii) \(29 + \ldots = 0\)
(iii) \(132 + (-132) = \ldots\)
(iv) \(-14 + \ldots = 22\)
(v) \(-1256 + \ldots = -742\)
(vi) \(\ldots - 1234 = -4539\)

Solution:
(i) \(-7 + 7 = 0\)
(ii) \(29 + (-29) = 0\)
(iii) \(132 + (-132) = 0\)
(iv) \(-14 + 36 = 22\)
(v) \(-1256 + 514 = -742\)
(vi) \(-3305 - 1234 = -4539\)
Mark the correct alternative in each of the following:

1. Which of the following statement is true?
   (a) \(-7 > -5\)  \hspace{.5cm} (b) \(-7 < -5\)  \hspace{.5cm} (c) \((-7) + (-5) > 0\)  \hspace{.5cm} (d) \((-7) - (-5) > 0\)
   Solution:

   The option (b) is correct answer.
   In option (a)
   We know that \(-7\) is to the left of \(-5\)
   Hence, \(-7 < -5\).
   In option (c)
   We know that \((-7) + (-5) = -12\).
   So \(-12\) is to the left of 0
   Hence \((-7) + (-5) < 0\).
   In option (d)
   \((-7) - (-5) = -2\)
   We know that \(-2\) is to the left of 0, so \((-7) - (-5) < 0\).

2. 5 less than \(-2\) is
   (a) 3  \hspace{.5cm} (b) -3  \hspace{.5cm} (c) -7  \hspace{.5cm} (d) 7
   Solution:

   The option (c) is correct answer.
   We know that, 5 less than \(-2\) = \((-2) - 5 = -7\)

3. 6 more than \(-7\) is
   (a) 1  \hspace{.5cm} (b) -1  \hspace{.5cm} (c) 13  \hspace{.5cm} (d) -13
   Solution:

   The option (b) is correct answer.
   We know that, 6 more than \(-7\) = \((-7) + 6 = -1\)

4. If \(x\) is a positive integer, then
   (a) \(x + |x| = 0\)  \hspace{.5cm} (b) \(x - |x| = 0\)  \hspace{.5cm} (c) \(x + |x| = -2x\)  \hspace{.5cm} (d) \(x = - |x|\)
   Solution:

   The option (b) is correct answer.
   We know that if \(x\) is positive integer, then \(|x| = x\)
   Hence, \(x + |x| = x + x = 2x\) and \(x - |x| = x - x = 0\)

5. If \(x\) is a negative integer, then
   (a) \(x + |x| = 0\)  \hspace{.5cm} (b) \(x - |x| = 0\)  \hspace{.5cm} (c) \(x + |x| = 2x\)  \hspace{.5cm} (d) \(x - |x| = -2x\)
   Solution:

   The option (a) is correct answer.
   We know that \(x\) is negative integer, then \(|x| = -x\)
   It can be written as
   \(x + |x| = x - x = 0\) and \(x - |x| = x - (-x) = x + x = 2x\)
6. If \( x \) is greater than 2, then \( |2 - x| = \)
(a) \( 2 - x \)  
(b) \( x - 2 \)  
(c) \( 2 + x \)  
(d) \( -x - 2 \)

Solution:

The option (b) is correct answer.
We know that if \( a \) is a negative integer, then \( |a| = -a \)
It is given that \( x \) is greater than 2 where \( 2 - x \) is negative
Hence, \( |2 - x| = -(2 - x) = -2 + x = x - 2 \).

7. \( 9 + |-4| \) is equal to
(a) \( 5 \)  
(b) \( -5 \)  
(c) \( 13 \)  
(d) \( -13 \)

Solution:

The option (c) is correct answer.
We know that, \( |-4| = 4 \)
Hence \( 9 + |-4| = 9 + 4 = 13 \)

8. \( (-35) + (-32) \) is equal to
(a) \( 67 \)  
(b) \( -67 \)  
(c) \( -3 \)  
(d) \( 3 \)

Solution:

The option (b) is correct answer.
It can be written as \( (-35) + (-32) = -(35 + 32) = -67 \)

9. \( (-29) + 5 \) is equal to
(a) \( 24 \)  
(b) \( 34 \)  
(c) \( -34 \)  
(d) \( -24 \)

Solution:

The option (d) is correct answer.
It can be written as \( (-29) + 5 = -(29 - 5) = -24 \)

10. \( |-(7) - 3| \) is equal to
(a) \( -7 \)  
(b) \( 7 \)  
(c) \( 10 \)  
(d) \( -10 \)

Solution:

The option (c) is correct answer.
It can be written as \( |-(7) - 3| = |7 - 3| = 10 | \)

11. The successor of \(-22\) is
(a) \( -23 \)  
(b) \( -21 \)  
(c) \( 23 \)  
(d) \( 21 \)

Solution:

The option (b) is correct answer.
We know that if \( a \) is an integer \( a + 1 \) is its successor.
So the successor of \(-22 = -22 + 1 = -(22 - 1) = -21 \)

12. The predecessor of \(-14\) is
(a) \( -15 \)  
(b) \( 15 \)  
(c) \( 13 \)  
(d) \( -13 \)

Solution:
The option (a) is correct answer.
The predecessor of \(-14\) is \(-15\).

13. If the sum of two integers is \(-26\) and one of them is 14, then the other integer is
(a) \(-12\)  
(b) 12  
(c) \(-40\)  
(d) 40
Solution:

The option (c) is correct answer.
It is given that the sum of two integers = \(-26\)
One of them = 14
So the other integer = \(-26 - 14 = -(26 + 14) = -40\)

14. Which of the following pairs of integers have 5 as a difference?
(a) 10, 5  
(b) \(-10, -5\)  
(c) 15, \(-20\)  
(d) both (a) and (b)
Solution:

The option (d) is correct answer.
Consider option (a) 10 - 5 = 5
Consider option (b) \((-5) - (-10) = -5 + 10 = 5\)
Consider option (c) 15 - \((-20) = 15 + 20 = 35\)

15. If the product of two integers is 72 and one of them is \(-9\), then the other integers is
(a) \(-8\)  
(b) 8  
(c) 81  
(d) 63
Solution:

The option (a) is correct answer.
It is given that the product of two integers = 72
One of them = \(-9\)
Hence, the other integers = \(72 \div (-9) = -8\)

16. On subtracting \(-7\) from \(-14\), we get
(a) \(-12\)  
(b) \(-7\)  
(c) \(-14\)  
(d) 21
Solution:

The option (b) is correct answer.
It can be written as
Required number = \(-14 - (-7) = -14 + 7 = -(14 - 7) = -7\)

17. The largest number that divides 64 and 72 and leave the remainders 12 and 7 respectively, is
(a) 17  
(b) 13  
(c) 14  
(d) 18
Solution:

The option (b) is correct answer.
By subtracting 12 and 7 from 64 and 72
We get
64 - 12 = 52 and 72 - 7 = 65
So the required number is the HCF of 52 and 65.
It can be written as
52 = 4 \times 13 and 65 = 5 \times 13
HCF 52 and 65 = 13
Hence, the largest number that divides 64 and 72 and leave the remainder 12 and 7 respectively, is 13.

18. The sum of two integers is $-23$. If one of them is 18, then the other is
(a) $-14$  (b) $14$  (c) $41$  (d) $-41$

Solution:

The option (d) is correct answer.
It is given as the sum of integers $= -23$
One of them $= 18$
So the other number $= (-23) - (18) = -23 - 18 = -(23 + 18) = -41$
Hence, the other number is $-41$.

19. The sum of two integers is $-35$. If one of them is 40, then the other is
(a) $5$  (b) $-75$  (c) $75$  (d) $-5$

Solution:

The option (b) is correct answer.
It is given that the sum of integers $= -35$
One of them $= 40$
So the other number $= (-35) - (40) = -35 - 40 = -(35 + 40) = -75$
Hence, the other number is $-75$.

20. On subtracting $-5$ from 0, we get
(a) $-5$  (b) $5$  (c) $50$  (d) $0$

Solution:

The option (d) is correct answer.
We know that, $0 - (-5) = 0 + 5 = 5$
Hence by subtracting $-5$ from 0, we obtain 5.

21. $(−16) + 14 − (−13)$ is equal to
(a) $-11$  (b) $12$  (c) $11$  (d) $-15$

Solution:

The option (c) is correct answer.
It can be written as $(−16) + 14 − (−13) = (−16) + 14 + 13 = (−16) + 27 = 27 − 16 = 11$

22. $(-2) \times (-3) \times 6 \times (-1)$ is equal to
(a) $36$  (b) $-36$  (c) $6$  (d) $-6$

Solution:

The option (b) is correct answer.
It can be written as $(-2) \times (-3) \times 6 \times (-1) = (2 \times 3) \times 6 \times (-1) = 6 \times 6 \times (-1) = 36 \times (-1)$
So we get $(−2) \times (−3) \times 6 \times (−1) = -(36 \times 1) = -36$

23. $86 + (-28) + 12 + (-34)$ is equal to
(a) $36$  (b) $-36$  (c) $6$  (d) $-6$

Solution:

The option (c) is correct answer.
It can be written as $86 + (-28) + 12 + (-34) = 86 + (-28) = (34 - 12) = 86 + (-28) = 22$
On further calculation
$86 + (-28) + 12 + (-34) = (86 - 28) = (34 - 12) = 58 - 22 = 36$

24. $(-12) \times (-9) - 6 \times (-8)$ is equal to
(a) 156  (b) 60  (c) -156  (d) -60
Solution:

The option (a) is correct answer.
It can be written as $(-12) \times (-9) - 6 \times (-8) = (12 \times 9) - 6 \times (-8) = 108 - 6 \times (-8)$
On further calculation
$86 + (-28) + 12 + (-34) = 108 + 6 \times 8 = 108 + 48 = 156$