

Access answers to Maths NCERT Solutions for Class 7 Chapter 1 – Integers Exercise 1.4

1. Evaluate each of the following:

(a) $(-30) \div 10$

Solution:-

$$= (-30) \div 10$$

$$= -3$$

When we divide a negative integer by a positive integer, we first divide them as whole numbers and then put minus sign (-) before the quotient.

(b) $50 \div (-5)$

Solution:-

$$= (50) \div (-5)$$

$$= -10$$

When we divide a positive integer by a negative integer, we first divide them as whole numbers and then put minus sign (-) before the quotient.

(c) $(-36) \div (-9)$

Solution:-

$$= (-36) \div (-9)$$

$$= 4$$

When we divide a negative integer by a negative integer, we first divide them as whole numbers and then put positive sign (+) before the quotient.

(d) $(-49) \div (49)$

Solution:-

$$= (-49) \div 49$$

$$= -1$$

When we divide a negative integer by a positive integer, we first divide them as whole numbers and then put minus sign (-) before the quotient.

(e) $13 \div [(-2) + 1]$

Solution:-

$$= 13 \div [(-2) + 1]$$

$$= 13 \div (-1)$$

$$= -13$$

When we divide a positive integer by a negative integer, we first divide them as whole numbers and then put minus sign (-) before the quotient.

(f) $0 \div (-12)$

Solution:-

$$= 0 \div (-12)$$

$$= 0$$

When we divide zero by a negative integer gives zero.

(g) $(-31) \div [(-30) + (-1)]$

Solution:-

$$= (-31) \div [(-30) + (-1)]$$

$$= (-31) \div [-30 - 1]$$

$$= (-31) \div (-31)$$

$$= 1$$

When we divide a negative integer by a negative integer, we first divide them as whole numbers and then put positive sign (+) before the quotient.

(h) $[(-36) \div 12] \div 3$

Solution:-

First we have to solve the integers with in the bracket,

$$= [(-36) \div 12]$$

$$= (-36) \div 12$$

$$= -3$$

Then,

$$= (-3) \div 3$$

$$= -1$$

When we divide a negative integer by a positive integer, we first divide them as whole numbers and then put minus sign (-) before the quotient.

(i) $[(-6) + 5] \div [(-2) + 1]$

Solution:-

The given question can be written as,

$$= [-1] \div [-1]$$

$$= 1$$

When we divide a negative integer by a negative integer, we first divide them as whole numbers and then put positive sign (+) before the quotient.

2. Verify that $a \div (b + c) \neq (a \div b) + (a \div c)$ for each of the following values of a, b and c.

(a) $a = 12, b = -4, c = 2$

Solution:-

From the question, $a \div (b + c) \neq (a \div b) + (a \div c)$

Given, $a = 12, b = -4, c = 2$

Now, consider $LHS = a \div (b + c)$

$$= 12 \div (-4 + 2)$$

$$= 12 \div (-2)$$

$$= -6$$

When we divide a positive integer by a negative integer, we first divide them as whole numbers and then put minus sign (-) before the quotient.

Then, consider $RHS = (a \div b) + (a \div c)$

$$= (12 \div (-4)) + (12 \div 2)$$

$$= (-3) + (6)$$

$$= 3$$

By comparing LHS and RHS

$$= -6 \neq 3$$

$$= LHS \neq RHS$$

Hence, the given values are verified.

(b) $a = (-10)$, $b = 1$, $c = 1$

Solution:-

From the question, $a \div (b + c) \neq (a \div b) + (a \div c)$

Given, $a = (-10)$, $b = 1$, $c = 1$

Now, consider $LHS = a \div (b + c)$

$$= (-10) \div (1 + 1)$$

$$= (-10) \div (2)$$

$$= -5$$

When we divide a negative integer by a positive integer, we first divide them as whole numbers and then put minus sign (-) before the quotient.

Then, consider $RHS = (a \div b) + (a \div c)$

$$= ((-10) \div (1)) + ((-10) \div 1)$$

$$= (-10) + (-10)$$

$$= -10 - 10$$

$$= -20$$

By comparing LHS and RHS

$$= -5 \neq -20$$

$$= LHS \neq RHS$$

Hence, the given values are verified.

3. Fill in the blanks:

(a) $369 \div \underline{\hspace{2cm}} = 369$

Solution:-

Let us assume the missing integer be x,

Then,

$$= 369 \div x = 369$$

$$= x = (369/369)$$

$$= x = 1$$

Now, put the value of x in the blank.

$$= 369 \div 1 = 369$$

(b) $(-75) \div \underline{\hspace{1cm}} = -1$

Solution:-

Let us assume the missing integer be x,

Then,

$$= (-75) \div x = -1$$

$$= x = (-75/-1)$$

$$= x = 75$$

Now, put the value of x in the blank.

$$= (-75) \div 75 = -1$$

(c) $(-206) \div \underline{\hspace{1cm}} = 1$

Solution:-

Let us assume the missing integer be x,

Then,

$$= (-206) \div x = 1$$

$$= x = (-206/1)$$

$$= x = -206$$

Now, put the value of x in the blank.

$$= (-206) \div (-206) = 1$$

(d) $-87 \div \underline{\hspace{1cm}} = 87$

Solution:-

Let us assume the missing integer be x,

Then,

$$= (-87) \div x = 87$$

$$= x = (-87)/87$$

$$= x = -1$$

Now, put the value of x in the blank.

$$= (-87) \div (-1) = 87$$

(e) _____ \div 1 = - 87

Solution:-

Let us assume the missing integer be x,

Then,

$$= (x) \div 1 = -87$$

$$= x = (-87) \times 1$$

$$= x = -87$$

Now, put the value of x in the blank.

$$= (-87) \div 1 = -87$$

(f) _____ \div 48 = -1

Solution:-

Let us assume the missing integer be x,

Then,

$$= (x) \div 48 = -1$$

$$= x = (-1) \times 48$$

$$= x = -48$$

Now, put the value of x in the blank.

$$= (-48) \div 48 = -1$$

(g) 20 \div _____ = -2

Solution:-

Let us assume the missing integer be x,

Then,

$$= 20 \div x = -2$$

$$= x = (20) / (-2)$$

$$= x = -10$$

Now, put the value of x in the blank.

$$= (20) \div (-10) = -2$$

(h) _____ \div (4) = -3

Solution:-

Let us assume the missing integer be x,

Then,

$$= (x) \div 4 = -3$$

$$= x = (-3) \times 4$$

$$= x = -12$$

Now, put the value of x in the blank.

$$= (-12) \div 4 = -3$$

4. Write five pairs of integers (a, b) such that $a \div b = -3$. One such pair is (6, -2) because $6 \div (-2) = (-3)$.

Solution:-

(i) (15, -5)

Because, $15 \div (-5) = (-3)$

(ii) (-15, 5)

Because, $(-15) \div (5) = (-3)$

(iii) (18, -6)

Because, $18 \div (-6) = (-3)$

(iv) (-18, 6)

Because, $(-18) \div 6 = (-3)$

(v) (21, -7)

Because, $21 \div (-7) = (-3)$

5. The temperature at 12 noon was 10°C above zero. If it decreases at the rate of 2°C per hour until midnight, at what time would the temperature be 8°C below zero? What would be the temperature at mid-night?

Solution:-

From the question is given that,

Temperature at the beginning i.e., at 12 noon = 10°C

Rate of change of temperature = -2°C per hour

Then,

Temperature at 1 PM = $10 + (-2) = 10 - 2 = 8^{\circ}\text{C}$

Temperature at 2 PM = $8 + (-2) = 8 - 2 = 6^{\circ}\text{C}$

Temperature at 3 PM = $6 + (-2) = 6 - 2 = 4^{\circ}\text{C}$

Temperature at 4 PM = $4 + (-2) = 4 - 2 = 2^{\circ}\text{C}$

Temperature at 5 PM = $2 + (-2) = 2 - 2 = 0^{\circ}\text{C}$

Temperature at 6 PM = $0 + (-2) = 0 - 2 = -2^{\circ}\text{C}$

Temperature at 7 PM = $-2 + (-2) = -2 - 2 = -4^{\circ}\text{C}$

Temperature at 8 PM = $-4 + (-2) = -4 - 2 = -6^{\circ}\text{C}$

Temperature at 9 PM = $-6 + (-2) = -6 - 2 = -8^{\circ}\text{C}$

\therefore At 9 PM the temperature will be 8°C below zero

Then,

The temperature at mid-night i.e., at 12 AM

Change in temperature in 12 hours = $-2^{\circ}\text{C} \times 12 = -24^{\circ}\text{C}$

So, at midnight temperature will be = $10 + (-24)$

= -14°C

So, at midnight temperature will be 14°C below 0.

6. In a class test (+ 3) marks are given for every correct answer and (–2) marks are given for every incorrect answer and no marks for not attempting any question. (i) Radhika scored 20 marks. If she has got 12 correct answers, how many questions has she attempted incorrectly? (ii) Mohini scores –5 marks in this test, though she has got 7 correct answers. How many questions has she attempted incorrectly?

Solution:-

From the question,

Marks awarded for 1 correct answer = + 3

Marks awarded for 1 wrong answer = -2

(i) Radhika scored 20 marks

Then,

Total marks awarded for 12 correct answers = $12 \times 3 = 36$

Marks awarded for incorrect answers = Total score – Total marks awarded for 12 correct

Answers

= $20 - 36$

= -16

So, the number of incorrect answers made by Radhika = $(-16) \div (-2)$

= 8

(ii) Mohini scored -5 marks

Then,

Total marks awarded for 7 correct answers = $7 \times 3 = 21$

Marks awarded for incorrect answers = Total score – Total marks awarded for 12 correct

Answers

= $-5 - 21$

= -26

So, the number of incorrect answers made by Radhika = $(-26) \div (-2)$

= 13

7. An elevator descends into a mine shaft at the rate of 6 m/min. If the descent starts from 10 m above the ground level, how long will it take to reach – 350 m.

Solution:-

From the question,

The initial height of the elevator = 10 m

Final depth of elevator = -350 m ... [\because distance descended is denoted by a negative

integer]

The total distance descended by the elevator = $(-350) - (10)$

= -360 m

Then,

Time taken by the elevator to descend -6 m = 1 min

So, time taken by the elevator to descend -360 m = $(-360) \div (-60)$

= 60 minutes

= 1 hour