

Integers and Rational Numbers

Mathematics · Class 7 · Topic-wise Practice Worksheet

TIME 45 minutes	QUESTIONS 18	TOTAL MARKS 24	MAX. SCORE ___ / 24
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Name: _____ Class/Sec: _____ Date: _____

INSTRUCTIONS

- There are **18 questions** in this worksheet. All questions are compulsory.
- Each question has four options (A), (B), (C) and (D). Exactly **one** option is correct.
- Questions 1–15 carry **1 mark** each. Questions 16–18 (Achievers Section) carry **3 marks** each.
- There is no negative marking. Use of a calculator is **not** allowed.
- Rough work may be done in the space at the side of each page.

Section A — Mathematical Reasoning

Q1–Q8 · 1 mark each

1. $(-15) \div (-3) = \underline{\hspace{2cm}}$

(A) -5

(B) -45

(C) 5

(D) 45

2. Which property is shown by $(-4) \times [3 + (-7)] = (-4) \times 3 + (-4) \times (-7)$?

(A) Commutative

(B) Associative

(C) Closure

(D) Distributive

3. The additive inverse of $\frac{-7}{11}$ is _____.

(A) $\frac{7}{11}$

(B) $\frac{-11}{7}$

(C) $\frac{11}{7}$

(D) 0

4. Which rational number lies between $\frac{1}{4}$ and $\frac{1}{3}$?

(A) $\frac{1}{5}$

(B) $\frac{1}{2}$

(C) $\frac{2}{7}$

(D) $\frac{3}{4}$

5. $\frac{-5}{9} \times \frac{3}{10} = \underline{\hspace{2cm}}$

(A) $\frac{1}{6}$

(B) $\frac{-15}{19}$

(C) $\frac{-2}{19}$

(D) $\frac{-1}{6}$

6. The reciprocal of $\frac{-4}{7}$ is _____.

(A) $\frac{-7}{4}$

(B) $\frac{4}{7}$

(C) $\frac{7}{4}$

(D) $\frac{-4}{7}$

7. Which of these rational numbers is the **greatest**?

(A) $\frac{-2}{3}$

(B) $\frac{-7}{12}$

(C) $\frac{-5}{6}$

(D) $\frac{-3}{4}$

8. The value of $(-2)^3$ is _____.

(A) -6

(B) 6

(C) -8

(D) 8

Section B — Everyday Mathematics and Reasoning

Q9–Q15 · 1 mark each

9. In a test, +4 marks are given for a correct answer, -2 for a wrong one and 0 for an unattempted one. Ravi attempted 30 questions out of 40 and got 22 right. What was his score?

(A) 72

(B) 74

(C) 80

(D) 88

10. On the number line shown, which point represents $\frac{-7}{4}$?

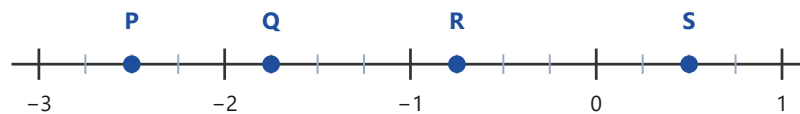


Fig. 10.1 — Each unit is divided into four equal parts

(A) P

(B) Q

(C) R

(D) S

11. The temperature at a hill station fell from 8 °C to -5 °C overnight. By how much did it fall?

(A) 3 °C

(B) 5 °C

(C) -13 °C

(D) 13 °C

12. The sum of two rational numbers is $\frac{-3}{5}$. If one of them is $\frac{2}{15}$, the other is _____.

(A) $\frac{-11}{15}$

(B) $\frac{-1}{15}$

(C) $\frac{-7}{15}$

(D) $\frac{11}{15}$

13. A diver descends at 3 m per minute from the surface. Where is he after 8 minutes?

(A) 24 m above the surface

(B) 24 m below the surface

(C) 11 m below the surface

(D) 5 m below the surface

14. $\frac{-8}{15} \div \frac{4}{5} = \underline{\hspace{2cm}}$

(A) $\frac{-3}{2}$

(B) $\frac{-32}{75}$

(C) $\frac{-2}{3}$

(D) $\frac{2}{3}$

15. How many rational numbers lie between $\frac{-1}{2}$ and $\frac{1}{2}$?

(A) One

(B) Two

(C) Nine

(D) Infinitely many

Achievers Section

Q16–Q18 · 3 marks each

16. Consider the following statements.

(i) Every integer is a rational number.

(ii) The product of two negative rational numbers is negative.

(iii) 0 has no reciprocal.

Which of the statements is/are correct?

(A) (i) and (ii) only

(B) (i) and (iii) only

(C) (ii) and (iii) only

(D) All three

17. Find the value of $\frac{2}{3} - \frac{-5}{6} + \frac{-1}{4}$.

(A) $\frac{5}{4}$

(B) $\frac{13}{12}$

(C) $\frac{3}{4}$

(D) $\frac{17}{12}$

18. A shopkeeper made a profit of ₹1,250 on Monday and a loss of ₹680 on Tuesday, then a loss of ₹425 on Wednesday. What was his overall position?

(A) A loss of ₹145

(B) A profit of ₹145

(C) A profit of ₹1,105

(D) A loss of ₹1,105

Answer Key

1	C	2	D	3	A	4	C	5	D
6	A	7	B	8	C	9	A	10	B
11	D	12	A	13	B	14	C	15	D
16	B	17	A	18	B				

Solutions

1. Answer: (C) 5

A negative divided by a negative gives a positive.

$15 \div 3 = 5$, so the answer is **5**.

2. Answer: (D) Distributive

Multiplying a bracket term by term is the **distributive** property of multiplication over addition.

3. Answer: (A) $\frac{7}{11}$

The additive inverse is what must be added to give 0.

$\frac{-7}{11} + \frac{7}{11} = 0$, so the answer is **$\frac{7}{11}$** .

4. Answer: (C) $\frac{2}{7}$

Write with a common denominator of 84: $\frac{1}{4} = \frac{21}{84}$, $\frac{1}{3} = \frac{28}{84}$ and $\frac{2}{7} = \frac{24}{84}$.

Since $21 < 24 < 28$, the number **$\frac{2}{7}$** lies between them. The others fall outside the range.

5. Answer: (D) $\frac{-1}{6}$

Multiply the numerators and the denominators.

$$\frac{-5}{9} \times \frac{3}{10} = \frac{-15}{90}$$

Dividing top and bottom by 15 gives **$\frac{-1}{6}$** . A negative times a positive is negative, which rules out $\frac{1}{6}$.

6. Answer: (A) $\frac{-7}{4}$

The reciprocal is found by interchanging numerator and denominator, keeping the sign.

Check: $\frac{-4}{7} \times \frac{-7}{4} = 1$, so the reciprocal is **$\frac{-7}{4}$** .

7. Answer: (B) $\frac{-7}{12}$

Write all with denominator 12: $\frac{-8}{12}$, $\frac{-9}{12}$, $\frac{-10}{12}$ and $\frac{-7}{12}$.

For negatives, the one closest to zero is greatest, so **$\frac{-7}{12}$** is the greatest.

8. Answer: (C) -8

$(-2)^3 = (-2) \times (-2) \times (-2) = 4 \times (-2) = -8$. An odd power of a negative number stays negative.

9. Answer: (A) 72

Correct: $22 \times 4 = 88$.

Wrong: he attempted 30 and got 22 right, so 8 were wrong: $8 \times (-2) = -16$.

Unattempted questions score 0.

Total = $88 - 16 = 72$.

10. Answer: (B) Q

$\frac{-7}{4} = -1.75$, which is three quarters to the left of -1 — that is, one quarter to the right of -2 . Point **Q** sits exactly there.

(P is $\frac{-9}{4}$, R is $\frac{-3}{4}$ and S is $\frac{1}{2}$.)

11. Answer: (D) 13°C

The fall is the difference between the two readings.

$$8 - (-5) = 8 + 5 = \mathbf{13^{\circ}\text{C}}.$$

12. Answer: (A) $\frac{-11}{15}$

$$\text{Other} = \frac{-3}{5} - \frac{2}{15}$$

$$= \frac{-9}{15} - \frac{2}{15} = \frac{-11}{15}.$$

$$\text{Check: } \frac{-11}{15} + \frac{2}{15} = \frac{-9}{15} = \frac{-3}{5} \cdot \checkmark$$

13. Answer: (B) 24 m below the surface

Taking downward as negative, each minute changes his position by -3 m.

After 8 minutes: $8 \times (-3) = -24$ m, which is **24 m below the surface**.

14. Answer: (C) $\frac{-2}{3}$

Dividing means multiplying by the reciprocal.

$$\frac{-8}{15} \times \frac{5}{4} = \frac{-40}{60} = \frac{-2}{3}.$$

15. Answer: (D) Infinitely many

Between any two distinct rational numbers there are **infinitely many** rational numbers. Taking the mid-point of any interval always produces another one, and the trick can be repeated endlessly.

16. Answer: (B) (i) and (iii) only

Statement (i) is true — any integer n can be written as $\frac{n}{1}$. Statement (ii) is false; the product of two negatives is

positive. Statement (iii) is true; $\frac{1}{0}$ is not defined. Hence **(i) and (iii)**.

17. Answer: (A) $\frac{5}{4}$

Subtracting a negative means adding, so the expression is $\frac{2}{3} + \frac{5}{6} - \frac{1}{4}$.

The LCM of 3, 6 and 4 is 12:

$$\frac{2}{3} = \frac{8}{12}, \frac{5}{6} = \frac{10}{12}, \frac{1}{4} = \frac{3}{12}.$$

$$\frac{8}{12} + \frac{10}{12} - \frac{3}{12} = \frac{15}{12} = \frac{5}{4}.$$

18. Answer: (B) A profit of ₹145

Take profit as positive and loss as negative.

$$1,250 + (-680) + (-425)$$

$$= 1,250 - 1,105 = +145.$$

The sign is positive, so it is **a profit of ₹145**.