

Fractions and Rational Numbers

MCQ Test, Set 09

Time: 30 minutes

Maximum marks: 25

Name: _____ Class: _____ Date: _____

- There are 25 questions. Each has exactly one correct answer: choose A, B, C or D.
- Each correct answer carries 1 mark. There is no negative marking.
- The key sheet and worked solutions are at the end of this test.

- A bar is divided into 16 equal parts and 7 parts are shaded. The part that is not shaded is
 A. $\frac{16}{9}$ B. $\frac{7}{16}$ C. $\frac{9}{16}$ D. $\frac{9}{7}$
- Two rectangles are each divided into 8 equal parts. All parts of the first and 5 parts of the second are shaded. The total shaded region is
 A. $\frac{8}{13}$ B. $\frac{13}{8}$ C. $\frac{5}{8}$ D. $\frac{13}{16}$
- In the fraction $\frac{15}{22}$, the denominator is
 A. 22 B. 15 C. $\frac{15}{22}$ D. $\frac{22}{15}$
- $\frac{28}{11}$ as a mixed fraction is
 A. $6\frac{2}{11}$ B. $2\frac{6}{11}$ C. $2\frac{5}{11}$ D. $3\frac{6}{11}$
- $4\frac{1}{11}$ as an improper fraction is
 A. $\frac{5}{11}$ B. $\frac{43}{11}$ C. $\frac{15}{11}$ D. $\frac{45}{11}$
- From $\frac{8}{9}, \frac{8}{5}, \frac{10}{11}, \frac{20}{11}, \frac{8}{13}, \frac{17}{11}$, the like fractions are
 A. $\frac{8}{5}, \frac{10}{11}, \frac{8}{13}$ B. $\frac{17}{11}, \frac{20}{11}, \frac{10}{11}$
 C. $\frac{17}{11}, \frac{8}{9}, \frac{20}{11}$ D. $\frac{8}{9}, \frac{8}{5}, \frac{8}{13}$
- Among 0, $\frac{-7}{11}, \frac{15}{0}, -4$, the one that is not a rational number is
 A. $\frac{-7}{11}$ B. 0 C. $\frac{15}{0}$ D. -4
- Which of the following is NOT equivalent to $\frac{11}{12}$?
 A. $\frac{33}{36}$ B. $\frac{77}{84}$ C. $\frac{66}{72}$ D. $\frac{12}{13}$
- The simplest form of $\frac{117}{63}$ is
 A. $\frac{13}{7}$ B. $\frac{39}{7}$ C. $\frac{39}{21}$ D. $\frac{13}{21}$
- The standard form of $\frac{104}{-120}$ is
 A. $-\frac{13}{15}$ B. $\frac{13}{15}$ C. $\frac{13}{-15}$ D. $-\frac{52}{60}$

11. The ascending order of 30, -34 , -26 , -16 , 38 is
- A. 38, 30, -16 , -26 , -34 B. -16 , -26 , -34 , 30, 38 C. -34 , -26 , -16 , 30, 38 D. -16 , -26 , 30, -34 , 38
-
12. The greatest among $\frac{1}{10}$, $\frac{11}{10}$, $\frac{4}{3}$, $-\frac{19}{12}$ is
- A. $\frac{4}{3}$ B. $-\frac{19}{12}$ C. $\frac{1}{10}$ D. $\frac{11}{10}$
-
13. $\frac{9}{8} \square \frac{12}{11}$. The sign that goes in the box is
- A. cannot be compared B. =
C. < D. >
-
14. $\frac{49}{40} + \frac{57}{40} - \frac{37}{40} =$
- A. $-\frac{69}{40}$ B. $\frac{143}{40}$ C. $\frac{69}{120}$ D. $\frac{69}{40}$
-
15. $\frac{1}{10} - \frac{4}{5} =$
- A. $\frac{7}{10}$ B. $-\frac{3}{15}$ C. $-\frac{7}{10}$ D. $-\frac{3}{10}$
-
16. $\frac{3}{4} + \frac{13}{12} - \frac{5}{8} =$
- A. $-\frac{29}{24}$ B. $\frac{59}{24}$ C. $\frac{29}{24}$ D. $\frac{11}{24}$
-
17. $\frac{36}{13} - 2 =$
- A. $\frac{62}{13}$ B. $\frac{10}{13}$ C. $-\frac{10}{13}$ D. $\frac{34}{13}$
-
18. $-19 \times \frac{36}{19} =$
- A. $-\frac{684}{361}$ B. $-\frac{36}{361}$ C. 36 D. -36
-
19. $\frac{13}{9} \times \frac{9}{11} \times \frac{11}{18} =$
- A. 1 B. $\frac{18}{13}$ C. $\frac{13}{18}$ D. $\frac{13}{1782}$
-
20. $4\frac{4}{7} \times 4\frac{1}{2} =$
- A. $\frac{127}{14}$ B. $\frac{144}{7}$ C. $\frac{20}{7}$ D. $\frac{114}{7}$
-
21. $\frac{15}{14} \div \left(-\frac{5}{16}\right) =$
- A. $-\frac{24}{7}$ B. $-\frac{75}{224}$ C. $-\frac{7}{24}$ D. $\frac{24}{7}$
-
22. $\frac{7}{9} \div 7 =$
- A. 9 B. $\frac{1}{9}$ C. $\frac{7}{16}$ D. $\frac{49}{9}$
-
23. Since $-29 < -6$, which is true?
- A. $\frac{1}{-29} < \frac{1}{-6}$ B. $\frac{1}{-29} = \frac{1}{-6}$
C. $\frac{1}{-29} > \frac{1}{-6}$ D. $\frac{1}{-6} > \frac{1}{-29}$
-
24. If $-10 < -8$, then multiplying both sides by -6 gives
- A. $60 = 48$ B. $-60 > -48$ C. $60 < 48$ D. $60 > 48$
-

25. $\frac{22}{9}$ lies between

A. 2 and 3

B. -3 and -2

C. 3 and 4

D. 1 and 2

Key sheet

1. C	2. B	3. A	4. B	5. D
6. B	7. C	8. D	9. A	10. A
11. C	12. A	13. D	14. D	15. C
16. C	17. B	18. D	19. C	20. B
21. A	22. B	23. C	24. D	25. A

Solutions

1. A bar is divided into 16 equal parts and 7 parts are shaded. The part that is not shaded is

$$\text{Unshaded parts} = 16 - 7 = 9$$

$$\text{Unshaded region} = \frac{9}{16}$$

Ans: (C) $\frac{9}{16}$

2. Two rectangles are each divided into 8 equal parts. All parts of the first and 5 parts of the second are shaded. The total shaded region is

$$\text{First figure} = 1, \text{ second} = \frac{5}{8}$$

$$1 + \frac{5}{8} = \frac{8}{8} + \frac{5}{8} = \frac{13}{8}$$

Ans: (B) $\frac{13}{8}$

3. In the fraction $\frac{15}{22}$, the denominator is

In a fraction, the upper number is the numerator and the lower number is the denominator.

So the denominator of $\frac{15}{22}$ is 22.

Ans: (A) 22

4. $\frac{28}{11}$ as a mixed fraction is

$28 \div 11$: quotient 2, remainder 6

$$\frac{28}{11} = 2 + \frac{6}{11} = 2\frac{6}{11}$$

Ans: (B) $2\frac{6}{11}$

5. $4\frac{1}{11}$ as an improper fraction is

$$4\frac{1}{11} = \frac{(4 \times 11) + 1}{11}$$

$$= \frac{44 + 1}{11} = \frac{45}{11}$$

Ans: (D) $\frac{45}{11}$

6. From $\frac{8}{9}$, $\frac{8}{5}$, $\frac{10}{11}$, $\frac{20}{11}$, $\frac{8}{13}$, $\frac{17}{11}$, the like fractions are

Like fractions have the same denominator.

$\frac{17}{11}$, $\frac{20}{11}$, $\frac{10}{11}$ all have denominator 11.

Ans: (B) $\frac{17}{11}$, $\frac{20}{11}$, $\frac{10}{11}$

7. Among 0, $\frac{-7}{11}$, $\frac{15}{0}$, -4 , the one that is not a rational number is

A rational number is of the form $\frac{p}{q}$, p, q integers and $q \neq 0$.

$0 = \frac{0}{1}$ and $-4 = \frac{-4}{1}$ are rational numbers.

In $\frac{15}{0}$ the denominator is 0, so it is not a rational number.

Ans: (C) $\frac{15}{0}$

8. Which of the following is NOT equivalent to $\frac{11}{12}$?

$\frac{66}{72}$, $\frac{33}{36}$, $\frac{77}{84}$ are got by multiplying 11 and 12 by the same number.

$\frac{12}{13}$ is got by adding 1; adding does not give an equivalent fraction.

Ans: (D) $\frac{12}{13}$

9. The simplest form of $\frac{117}{63}$ is

H.C.F of 117, 63 = 9

$$\frac{117}{63} = \frac{117 \div 9}{63 \div 9} = \frac{13}{7}$$

Ans: (A) $\frac{13}{7}$

10. The standard form of $\frac{104}{-120}$ is

$$\frac{104}{-120} = -\frac{104}{120}, \text{ since } (+)/(-) = (-)$$

H.C.F of 104, 120 = 8, so = $-\frac{13}{15}$ (the denominator must be positive)

Ans: (A) $-\frac{13}{15}$

11. The ascending order of 30, -34, -26, -16, 38 is

Negative numbers come before 0 and the positive numbers; $-34 < -26 < -16$.

Ascending order: -34, -26, -16, 30, 38

Ans: (C) -34, -26, -16, 30, 38

12. The greatest among $\frac{1}{10}, \frac{11}{10}, \frac{4}{3}, -\frac{19}{12}$ is

L.C.M of 10, 3, 12 = $2 \times 3 \times 5 \times 2 = 60$

$$\frac{1}{10} = \frac{6}{60}, \frac{11}{10} = \frac{66}{60}, \frac{4}{3} = \frac{80}{60}, -\frac{19}{12} = -\frac{95}{60}$$

The largest numerator is 80, so the greatest is $\frac{4}{3}$.

Ans: (A) $\frac{4}{3}$

13. $\frac{9}{8} \square \frac{12}{11}$. The sign that goes in the box is

$$9 \times 11 = 99, 8 \times 12 = 96$$

$$99 > 96 \Rightarrow \frac{9}{8} > \frac{12}{11}$$

Ans: (D) >

14. $\frac{49}{40} + \frac{57}{40} - \frac{37}{40} =$

Like fractions: keep the denominator, add and subtract the numerators.

$$= \frac{49+57-37}{40} = \frac{69}{40}$$

Ans: (D) $\frac{69}{40}$

15. $\frac{1}{10} - \frac{4}{5} =$

L.C.M of 10, 5 = $5 \times 2 = 10$

$$= \frac{1-8}{10}$$

$$= -\frac{7}{10}$$

Ans: (C) $-\frac{7}{10}$

16. $\frac{3}{4} + \frac{13}{12} - \frac{5}{8} =$

L.C.M of 4, 12, 8 = $2 \times 2 \times 3 \times 2 = 24$

$$= \frac{18+26-15}{24}$$

$$= \frac{44-15}{24}$$

$$= \frac{29}{24}$$

Ans: (C) $\frac{29}{24}$

17. $\frac{36}{13} - 2 =$

Write $2 = \frac{2}{1}$.

$$\frac{36}{13} - 2 = \frac{36-26}{13} = \frac{10}{13}$$

Ans: (B) $\frac{10}{13}$

18. $-19 \times \frac{36}{19} =$

$$-19 = \frac{-19}{1}$$

Sign: $(-) \times (+) = (-)$

$$= -\frac{19 \times 36}{1 \times 19}$$

$$= -\frac{19 \times (2 \times 2 \times 3 \times 3)}{1 \times 19}$$

Cancelling the common factor 19: $= -\frac{2 \times 2 \times 3 \times 3}{1} = -36$

Ans: (D) -36

19. $\frac{13}{9} \times \frac{9}{11} \times \frac{11}{18} =$

$$= \frac{13 \times 9 \times 11}{9 \times 11 \times 18}$$

Cancelling 9 and 11: $= \frac{13}{18}$

Ans: (C) $\frac{13}{18}$

20. $4\frac{4}{7} \times 4\frac{1}{2} =$

Convert to improper fractions first: $4\frac{4}{7} = \frac{32}{7}$, $4\frac{1}{2} = \frac{9}{2}$

$$\frac{32}{7} \times \frac{9}{2} = \frac{144}{7}$$

Ans: (B) $\frac{144}{7}$

21. $\frac{15}{14} \div \left(-\frac{5}{16}\right) =$

$\frac{15}{14} \div \left(-\frac{5}{16}\right) = \frac{15}{14} \times \left(-\frac{16}{5}\right)$ (multiply by the reciprocal)

$$= -\frac{24}{7}$$

Ans: (A) $-\frac{24}{7}$

22. $\frac{7}{9} \div 7 =$

$$\frac{7}{9} \div 7 = \frac{7}{9} \div \frac{7}{1} = \frac{7}{9} \times \frac{1}{7}$$

$$= \frac{1}{9}$$

Ans: (B) $\frac{1}{9}$

23. Since $-29 < -6$, which is true?

Rule: $a < b \Leftrightarrow \frac{1}{a} > \frac{1}{b}$ if a, b have the same sign.

$$-29 < -6 \text{ (both negative)} \Rightarrow \frac{1}{-29} > \frac{1}{-6}$$

Ans: (C) $\frac{1}{-29} > \frac{1}{-6}$

24. If $-10 < -8$, then multiplying both sides by -6 gives

Rule: $a < b \Rightarrow ma > mb$ if $m < 0$ (the sign turns round).

$$-6 \times (-10) = 60, -6 \times (-8) = 48, \text{ so } 60 > 48$$

Ans: (D) $60 > 48$

25. $\frac{22}{9}$ lies between

$$\frac{22}{9} = 2 + \frac{4}{9}$$

So it lies between 2 and 3 on the number line.

Ans: (A) 2 and 3
