

Fractions and Rational Numbers

MCQ Test, Set 05

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.

- $\frac{1}{13} + \frac{1}{13} + \frac{1}{13} =$
A. $\frac{13}{3}$ **B.** $\frac{3}{13}$ **C.** $\frac{3}{39}$ **D.** $\frac{1}{39}$
- $1 + \frac{4}{9}$ written as an improper fraction is
A. $\frac{13}{4}$ **B.** $\frac{5}{10}$ **C.** $\frac{5}{9}$ **D.** $\frac{13}{9}$
- Among $\frac{2}{11}$, $\frac{26}{11}$, $\frac{2}{15}$, $\frac{1}{4}$, the improper fraction is
A. $\frac{2}{15}$ **B.** $\frac{2}{11}$ **C.** $\frac{26}{11}$ **D.** $\frac{1}{4}$
- The mixed fraction form of $\frac{91}{15}$ is
A. $1\frac{6}{15}$ **B.** $6\frac{1}{15}$ **C.** $6\frac{14}{15}$ **D.** $7\frac{1}{15}$
- $8\frac{1}{4}$ as an improper fraction is
A. $\frac{12}{4}$ **B.** $\frac{33}{4}$ **C.** $\frac{9}{4}$ **D.** $\frac{31}{4}$
- From $\frac{5}{9}$, $\frac{5}{3}$, $\frac{3}{8}$, $\frac{1}{8}$, $\frac{5}{4}$, $\frac{11}{8}$, the like fractions are
A. $\frac{3}{8}$, $\frac{11}{8}$, $\frac{1}{8}$ **B.** $\frac{5}{4}$, $\frac{5}{3}$, $\frac{5}{9}$
C. $\frac{5}{3}$, $\frac{1}{8}$, $\frac{5}{9}$ **D.** $\frac{3}{8}$, $\frac{5}{4}$, $\frac{11}{8}$
- A rational number is a number of the form $\frac{p}{q}$, where p, q are integers and
A. $q \neq 0$ **B.** $p \neq 0$ **C.** $p < q$ **D.** $q = 1$
- $\frac{13}{10} = \frac{\square}{40}$. The number in the box is
A. 43 **B.** 52 **C.** 4 **D.** 17
- The standard form of $\frac{518}{280}$ is
A. $\frac{37}{140}$ **B.** $\frac{259}{20}$ **C.** $\frac{259}{140}$ **D.** $\frac{37}{20}$
- The standard form of $\frac{2}{-14}$ is
A. $\frac{1}{-7}$ **B.** $\frac{1}{7}$ **C.** $-\frac{2}{14}$ **D.** $-\frac{1}{7}$
- The ascending order of $-39, 31, -12, -37, 34$ is
A. $-12, 31, 34, -37, -39$ **B.** $-12, -37, -39, 31, 34$ **C.** $-39, -37, -12, 31, 34$ **D.** $34, 31, -12, -37, -39$

12. The greatest among $\frac{1}{6}, -\frac{11}{8}, -\frac{1}{2}, \frac{7}{6}$ is

A. $-\frac{11}{8}$

B. $\frac{1}{6}$

C. $\frac{7}{6}$

D. $-\frac{1}{2}$

13. $\frac{6}{5} \square \frac{13}{10}$. The sign that goes in the box is

A. $<$

B. cannot be compared

C. $>$

D. $=$

14. $\frac{11}{16} + \frac{13}{16} - \frac{7}{16} =$

A. $-\frac{17}{16}$

B. $\frac{31}{16}$

C. $\frac{17}{16}$

D. $\frac{17}{48}$

15. $\frac{1}{4} - \frac{10}{7} =$

A. $-\frac{33}{28}$

B. $-\frac{9}{11}$

C. $\frac{33}{28}$

D. $-\frac{9}{28}$

16. $\frac{5}{6} - \frac{13}{12} - \frac{3}{16} =$

A. $-\frac{11}{48}$

B. $\frac{7}{16}$

C. $-\frac{11}{34}$

D. $-\frac{7}{16}$

17. $\frac{23}{12} - 5 =$

A. $\frac{37}{12}$

B. $-\frac{37}{12}$

C. $\frac{18}{12}$

D. $\frac{83}{12}$

18. $\frac{3}{8} \times \frac{8}{17} \times \frac{17}{16} =$

A. 1

B. $\frac{16}{3}$

C. $\frac{3}{16}$

D. $\frac{3}{2176}$

19. $\frac{25}{14} \times \left(-\frac{22}{13}\right) =$

A. $-\frac{325}{308}$

B. $\frac{275}{91}$

C. $-\frac{275}{91}$

D. $-\frac{47}{27}$

20. $4\frac{1}{3} \times 1\frac{1}{8} =$

A. $\frac{131}{24}$

B. $\frac{5}{12}$

C. $\frac{97}{24}$

D. $\frac{39}{8}$

21. $\frac{15}{16} \div \frac{10}{7} =$

A. $\frac{75}{56}$

B. $\frac{32}{21}$

C. $\frac{56}{75}$

D. $\frac{21}{32}$

22. $\frac{17}{13} \div 2 =$

A. $\frac{26}{17}$

B. $\frac{17}{26}$

C. $\frac{34}{13}$

D. $\frac{17}{15}$

23. Since $-16 < 17$ and they have opposite signs, which is true?

A. $\frac{1}{-16} < \frac{1}{17}$

B. $\frac{1}{-16} = \frac{1}{17}$

C. $\frac{1}{-16} > \frac{1}{17}$

D. $\frac{1}{17} < \frac{1}{-16}$

24. If $-7 < 12$, then multiplying both sides by 7 gives

A. $49 < -84$

B. $-49 = 84$

C. $-49 < 84$

D. $-49 > 84$

25. The part of the number line from -1 to 0 is divided into 10 equal parts. The 1st point to the left of 0 is

A. $-\frac{1}{10}$

B. -10

C. $\frac{1}{10}$

D. $-\frac{9}{10}$

Key sheet

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

Solutions

1. $\frac{1}{13} + \frac{1}{13} + \frac{1}{13} =$

3 parts of $\frac{1}{13}$ are added; the denominator does not change.

$$= \frac{3}{13}$$

Ans: (B) $\frac{3}{13}$

2. $1 + \frac{4}{9}$ written as an improper fraction is

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

$$\frac{9}{9} + \frac{4}{9} = \frac{13}{9}$$

Ans: (D) $\frac{13}{9}$

3. Among $\frac{2}{11}$, $\frac{26}{11}$, $\frac{2}{15}$, $\frac{1}{4}$, the improper fraction is

In an improper fraction the numerator is greater than or equal to the denominator.

$26 > 11$, so $\frac{26}{11}$ is improper.

Ans: (C) $\frac{26}{11}$

4. The mixed fraction form of $\frac{91}{15}$ is

$91 \div 15$: quotient 6, remainder 1

$$\frac{91}{15} = 6 + \frac{1}{15} = 6\frac{1}{15}$$

Ans: (B) $6\frac{1}{15}$

5. $8\frac{1}{4}$ as an improper fraction is

$$8\frac{1}{4} = \frac{(8 \times 4) + 1}{4}$$

$$= \frac{32+1}{4} = \frac{33}{4}$$

Ans: (B) $\frac{33}{4}$

6. From $\frac{5}{9}$, $\frac{5}{3}$, $\frac{3}{8}$, $\frac{1}{8}$, $\frac{5}{4}$, $\frac{11}{8}$, the like fractions are

Like fractions have the same denominator.

$\frac{3}{8}$, $\frac{11}{8}$, $\frac{1}{8}$ all have denominator 8.

Ans: (A) $\frac{3}{8}$, $\frac{11}{8}$, $\frac{1}{8}$

7. A rational number is a number of the form $\frac{p}{q}$, where p, q are integers and

Def: numbers of the form $\frac{p}{q}$, where p, q are integers and $q \neq 0$, are rational numbers.

Ans: (A) $q \neq 0$

8. $\frac{13}{10} = \frac{\square}{40}$. The number in the box is

$$40 \div 10 = 4$$

$$\frac{13}{10} = \frac{13 \times 4}{10 \times 4} = \frac{52}{40}$$

Ans: (B) 52

9. The standard form of $\frac{518}{280}$ is

$$\text{H.C.F of } 518, 280 = 14$$

$$\frac{518}{280} = \frac{518 \div 14}{280 \div 14} = \frac{37}{20}$$

$$\text{Ans: (D) } \frac{37}{20}$$

10. The standard form of $\frac{2}{-14}$ is

$$\frac{2}{-14} = -\frac{2}{14}, \text{ since } (+)/(-) = (-)$$

$$\text{H.C.F of } 2, 14 = 2, \text{ so } = -\frac{1}{7} \text{ (the denominator must be positive)}$$

$$\text{Ans: (D) } -\frac{1}{7}$$

11. The ascending order of $-39, 31, -12, -37, 34$ is

Negative numbers come before 0 and the positive numbers; $-39 < -37 < -12$.

Ascending order: $-39, -37, -12, 31, 34$

$$\text{Ans: (C) } -39, -37, -12, 31, 34$$

12. The greatest among $\frac{1}{6}, -\frac{11}{8}, -\frac{1}{2}, \frac{7}{6}$ is

$$\text{L.C.M of } 6, 8, 2 = 2 \times 3 \times 4 = 24$$

$$\frac{1}{6} = \frac{4}{24}, -\frac{11}{8} = -\frac{33}{24}, -\frac{1}{2} = -\frac{12}{24}, \frac{7}{6} = \frac{28}{24}$$

The largest numerator is 28, so the greatest is $\frac{7}{6}$.

$$\text{Ans: (C) } \frac{7}{6}$$

13. $\frac{6}{5} \square \frac{13}{10}$. The sign that goes in the box is

$$6 \times 10 = 60, 5 \times 13 = 65$$

$$60 < 65 \Rightarrow \frac{6}{5} < \frac{13}{10}$$

$$\text{Ans: (A) } <$$

14. $\frac{11}{16} + \frac{13}{16} - \frac{7}{16} =$

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

$$= \frac{11+13-7}{16} = \frac{17}{16}$$

$$\text{Ans: (C) } \frac{17}{16}$$

15. $\frac{1}{4} - \frac{10}{7} =$

$$\text{L.C.M of } 4, 7 = 4 \times 7 = 28$$

$$= \frac{7-40}{28}$$

$$= -\frac{33}{28}$$

$$\text{Ans: (A) } -\frac{33}{28}$$

16. $\frac{5}{6} - \frac{13}{12} - \frac{3}{16} =$

$$\text{L.C.M of } 6, 12, 16 = 2 \times 2 \times 3 \times 4 = 48$$

$$= \frac{40-52-9}{48}$$

$$= \frac{40-61}{48}$$

$$= -\frac{21}{48} = -\frac{7}{16}$$

$$\text{Ans: (D) } -\frac{7}{16}$$

17. $\frac{23}{12} - 5 =$

Write $5 = \frac{5}{1}$.

$$\frac{23}{12} - 5 = \frac{23-60}{12} = -\frac{37}{12}$$

Ans: (B) $-\frac{37}{12}$

18. $\frac{3}{8} \times \frac{8}{17} \times \frac{17}{16} =$

$$= \frac{3 \times 8 \times 17}{8 \times 17 \times 16}$$

Cancelling 8 and 17: $= \frac{3}{16}$

Ans: (C) $\frac{3}{16}$

19. $\frac{25}{14} \times \left(-\frac{22}{13}\right) =$

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

$$= -\frac{25 \times 22}{14 \times 13}$$

$$= -\frac{(5 \times 5) \times (2 \times 11)}{(2 \times 7) \times 13}$$

Cancelling the common factor 2: $= -\frac{5 \times 5 \times 11}{7 \times 13} = -\frac{275}{91}$

Ans: (C) $-\frac{275}{91}$

20. $4\frac{1}{3} \times 1\frac{1}{8} =$

Convert to improper fractions first: $4\frac{1}{3} = \frac{13}{3}$, $1\frac{1}{8} = \frac{9}{8}$

$$\frac{13}{3} \times \frac{9}{8} = \frac{39}{8}$$

Ans: (D) $\frac{39}{8}$

21. $\frac{15}{16} \div \frac{10}{7} =$

$$\frac{15}{16} \div \frac{10}{7} = \frac{15}{16} \times \frac{7}{10} \text{ (multiply by the reciprocal)}$$

$$= \frac{21}{32}$$

Ans: (D) $\frac{21}{32}$

22. $\frac{17}{13} \div 2 =$

$$\frac{17}{13} \div 2 = \frac{17}{13} \div \frac{2}{1} = \frac{17}{13} \times \frac{1}{2}$$

$$= \frac{17}{26}$$

Ans: (B) $\frac{17}{26}$

23. Since $-16 < 17$ and they have opposite signs, which is true?

Rule: $a < b \Leftrightarrow \frac{1}{a} < \frac{1}{b}$ if a, b have opposite signs.

$\frac{1}{-16}$ is negative and $\frac{1}{17}$ is positive, so $\frac{1}{-16} < \frac{1}{17}$.

Ans: (A) $\frac{1}{-16} < \frac{1}{17}$

24. If $-7 < 12$, then multiplying both sides by 7 gives

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

$$7 \times (-7) = -49, 7 \times 12 = 84, \text{ so } -49 < 84$$

Ans: (C) $-49 < 84$

25. The part of the number line from -1 to 0 is divided into 10 equal parts. The 1st point to the left of 0 is

Each part $= \frac{1}{10}$; to the left of 0 the numbers are negative.

1 parts to the left of 0 : $-\frac{1}{10}$

Ans: (A) $-\frac{1}{10}$
