EXPRESSWALA ACADEMY

Fractions and Rational Numbers

MCQ Test, Set 07

Time: 30 minutes | Maximum marks: 25

Name: _____ Class: _____ Date: _____

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

1. A rectangle is divided into 15 equal parts and 2 parts are shaded. The shaded region is

A. $\frac{13}{15}$ **B.** $\frac{15}{2}$ **C.** $\frac{2}{15}$ **D.** $\frac{2}{13}$

2. Two circles are each divided into 7 equal parts. All parts of the first and 4 parts of the second are shaded. The total shaded region is

A. $\frac{11}{14}$ **B.** $\frac{11}{7}$ **C.** $\frac{7}{11}$ **D.** $\frac{4}{7}$

3. Among $\frac{25}{11}, \frac{26}{11}, \frac{8}{8}, \frac{7}{15}$, the proper fraction is

A. $\frac{25}{11}$ **B.** $\frac{8}{8}$ **C.** $\frac{26}{11}$ **D.** $\frac{7}{15}$

4. The mixed fraction form of $\frac{35}{13}$ is

A. $9\frac{2}{13}$ **B.** $3\frac{9}{13}$ **C.** $2\frac{4}{13}$ **D.** $2\frac{9}{13}$

5. $23\frac{3}{14}$ as an improper fraction is

A. $\frac{26}{14}$ **B.** $\frac{319}{14}$ **C.** $\frac{325}{14}$ **D.** $\frac{83}{14}$

6. From $\frac{15}{8}, \frac{1}{8}, \frac{9}{8}, \frac{3}{4}, \frac{3}{10}, \frac{3}{13}$, the like fractions are

A. $\frac{3}{10}, \frac{3}{4}, \frac{3}{13}$ **B.** $\frac{1}{8}, \frac{3}{10}, \frac{15}{8}$
C. $\frac{1}{8}, \frac{15}{8}, \frac{9}{8}$ **D.** $\frac{3}{4}, \frac{9}{8}, \frac{3}{13}$

7. $3 = \frac{\square}{5}$. The number in the box is

A. 15 **B.** 8 **C.** 3 **D.** 5

8. Which fraction is equivalent to $\frac{1}{15}$?

A. $\frac{6}{90}$ **B.** $\frac{6}{21}$ **C.** $\frac{7}{21}$ **D.** $\frac{6}{105}$

9. The simplest form of $\frac{63}{162}$ is

A. $\frac{7}{54}$ **B.** $\frac{21}{54}$ **C.** $\frac{7}{18}$ **D.** $\frac{21}{18}$

10. The standard form of $\frac{21}{-18}$ is

A. $\frac{7}{-6}$ **B.** $-\frac{7}{6}$ **C.** $\frac{7}{6}$ **D.** $-\frac{21}{18}$

11. The greatest of $-10, -38, -13, -35$ is

A. -38 **B.** -10 **C.** -13 **D.** -35

12. The ascending order of $\frac{11}{12}, \frac{1}{10}, \frac{3}{10}$ is

A. $\frac{1}{10}, \frac{3}{10}, \frac{11}{12}$ **B.** $\frac{11}{12}, \frac{1}{10}, \frac{3}{10}$

C. $\frac{11}{12}, \frac{3}{10}, \frac{1}{10}$ **D.** $\frac{1}{10}, \frac{11}{12}, \frac{3}{10}$

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13. $\frac{7}{10} \square \frac{11}{16}$. The sign that goes in the box is

A. $>$ **B.** $<$

C. $=$ **D.** cannot be compared

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14. $\frac{1}{15} - \frac{6}{15} - \frac{19}{15} =$

A. $\frac{26}{15}$ **B.** $-\frac{8}{5}$ **C.** $-\frac{24}{45}$ **D.** $\frac{8}{5}$

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15. $\frac{7}{9} - \frac{5}{6} =$

A. $-\frac{1}{18}$ **B.** $\frac{2}{15}$ **C.** $\frac{1}{18}$ **D.** $\frac{2}{18}$

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16. $\frac{1}{12} - \frac{3}{4} - \frac{11}{16} =$

A. $-\frac{65}{48}$ **B.** $-\frac{13}{32}$ **C.** $\frac{65}{48}$ **D.** $-\frac{13}{48}$

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17. $7 - \frac{15}{11} =$

A. $\frac{92}{11}$ **B.** $-\frac{62}{11}$ **C.** $\frac{62}{11}$ **D.** $-\frac{8}{11}$

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18. $\frac{6}{5} \times \left(-\frac{20}{13}\right) =$

A. $\frac{24}{13}$ **B.** $-\frac{24}{13}$ **C.** $-\frac{39}{50}$ **D.** $-\frac{13}{9}$

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19. $22 \times \frac{35}{24} =$

A. $\frac{57}{24}$ **B.** $\frac{770}{528}$ **C.** $\frac{35}{528}$ **D.** $\frac{385}{12}$

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20. $3\frac{5}{7} \times 3\frac{3}{4} =$

A. $\frac{12}{7}$ **B.** $\frac{209}{28}$ **C.** $\frac{267}{28}$ **D.** $\frac{195}{14}$

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21. $\frac{20}{11} \div \frac{13}{14} =$

A. $\frac{280}{143}$ **B.** $\frac{77}{130}$ **C.** $\frac{130}{77}$ **D.** $\frac{143}{280}$

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22. $\frac{8}{15} \div 6 =$

A. $\frac{45}{4}$ **B.** $\frac{8}{21}$ **C.** $\frac{4}{45}$ **D.** $\frac{16}{5}$

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23. The smallest among $\frac{1}{2}, \frac{1}{29}, \frac{1}{30}, \frac{1}{3}$ is

A. $\frac{1}{29}$ **B.** $\frac{1}{3}$ **C.** $\frac{1}{2}$ **D.** $\frac{1}{30}$

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24. If $-2 < 1$, then multiplying both sides by -3 gives

A. $-6 > 3$ **B.** $6 = -3$ **C.** $6 < -3$ **D.** $6 > -3$

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25. The part of the number line from 0 to 1 is divided into 9 equal parts. The 7th point to the right of 0 is

A. $\frac{8}{9}$ **B.** $\frac{7}{9}$ **C.** $\frac{9}{7}$ **D.** $\frac{1}{7}$

Key sheet

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

Solutions

1. A rectangle is divided into 15 equal parts and 2 parts are shaded. The shaded region is

Each part is $\frac{1}{15}$; 2 parts are shaded.

Shaded region $= \frac{2}{15}$

Ans: (C) $\frac{2}{15}$

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2. Two circles are each divided into 7 equal parts. All parts of the first and 4 parts of the second are shaded. The total shaded region is

First figure $= 1$, second $= \frac{4}{7}$

$1 + \frac{4}{7} = \frac{7}{7} + \frac{4}{7} = \frac{11}{7}$

Ans: (B) $\frac{11}{7}$

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3. Among $\frac{25}{11}, \frac{26}{11}, \frac{8}{8}, \frac{7}{15}$, the proper fraction is

In a proper fraction the numerator is less than the denominator.

$7 < 15$, so $\frac{7}{15}$ is proper.

Ans: (D) $\frac{7}{15}$

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4. The mixed fraction form of $\frac{35}{13}$ is

$35 \div 13$: quotient 2, remainder 9

$\frac{35}{13} = 2 + \frac{9}{13} = 2\frac{9}{13}$

Ans: (D) $2\frac{9}{13}$

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5. $23\frac{3}{14}$ as an improper fraction is

$23\frac{3}{14} = \frac{(23 \times 14) + 3}{14}$

$= \frac{322 + 3}{14} = \frac{325}{14}$

Ans: (C) $\frac{325}{14}$

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6. From $\frac{15}{8}, \frac{1}{8}, \frac{9}{8}, \frac{3}{4}, \frac{3}{10}, \frac{3}{13}$, the like fractions are

Like fractions have the same denominator.

$\frac{1}{8}, \frac{15}{8}, \frac{9}{8}$ all have denominator 8.

Ans: (C) $\frac{1}{8}, \frac{15}{8}, \frac{9}{8}$

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7. $3 = \frac{\square}{5}$. The number in the box is

$3 = \frac{3}{1} = \frac{3 \times 5}{1 \times 5} = \frac{15}{5}$

Ans: (A) 15

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8. Which fraction is equivalent to $\frac{1}{15}$?

$\frac{1}{15} = \frac{1 \times 6}{15 \times 6} = \frac{6}{90}$

Multiplying the numerator and the denominator by the same number gives an equivalent fraction.

Ans: (A) $\frac{6}{90}$

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9. The simplest form of $\frac{63}{162}$ is

H.C.F of $63, 162 = 9$

$\frac{63}{162} = \frac{63 \div 9}{162 \div 9} = \frac{7}{18}$

Ans: (C) $\frac{7}{18}$

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10. The standard form of $\frac{21}{-18}$ is

$\frac{21}{-18} = -\frac{21}{18}$, since $(+)/(-) = (-)$

H.C.F of $21, 18 = 3$, so $= -\frac{7}{6}$ (the denominator must be positive)

Ans: (B) $-\frac{7}{6}$

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11. The greatest of $-10, -38, -13, -35$ is

Among negative numbers, the one with the smallest number after the minus sign is the greatest.

$-38 < -35 < -13 < -10$, so the greatest is -10.

Ans: (B) -10

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12. The ascending order of $\frac{11}{12}, \frac{1}{10}, \frac{3}{10}$ is

L.C.M of $12, 10 = 2 \times 6 \times 5 = 60$

$\frac{11}{12} = \frac{55}{60}, \frac{1}{10} = \frac{6}{60}, \frac{3}{10} = \frac{18}{60}$

Ascending order: $\frac{1}{10} < \frac{3}{10} < \frac{11}{12}$

Ans: (A) $\frac{1}{10}, \frac{3}{10}, \frac{11}{12}$

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13. $\frac{7}{10} \square \frac{11}{16}$. The sign that goes in the box is

$7 \times 16 = 112, 10 \times 11 = 110$

$112 > 110 \Rightarrow \frac{7}{10} > \frac{11}{16}$

Ans: (A) $>$

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14. $\frac{1}{15} - \frac{6}{15} - \frac{19}{15} =$

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

$= \frac{1-6-19}{15} = -\frac{24}{15} = -\frac{8}{5}$

Ans: (B) $-\frac{8}{5}$

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15. $\frac{7}{9} - \frac{5}{6} =$

L.C.M of $9, 6 = 3 \times 3 \times 2 = 18$

$= \frac{14-15}{18}$

$= -\frac{1}{18}$

Ans: (A) $-\frac{1}{18}$

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16. $\frac{1}{12} - \frac{3}{4} - \frac{11}{16} =$

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

$= \frac{4-36-33}{48}$

$= \frac{4-69}{48}$

$= -\frac{65}{48}$

Ans: (A) $-\frac{65}{48}$

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17. $7 - \frac{15}{11} =$

Write $7 = \frac{7}{1}$.

$7 - \frac{15}{11} = \frac{77-15}{11} = \frac{62}{11}$

Ans: (C) $\frac{62}{11}$

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18. $\frac{6}{5} \times \left(-\frac{20}{13}\right) =$

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

$= -\frac{6\times20}{5\times13}$

$= -\frac{(2\times3)\times(2\times2\times5)}{5\times13}$

Cancelling the common factor 5: $= -\frac{2\times3\times2\times2}{13} = -\frac{24}{13}$

Ans: (B) $-\frac{24}{13}$

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19. $22 \times \frac{35}{24} =$

$22 = \frac{22}{1}$

$= \frac{22\times35}{1\times24}$

$= \frac{(2\times11)\times(5\times7)}{1\times(2\times2\times2\times3)}$

Cancelling the common factor 2: $= \frac{11\times5\times7}{2\times2\times3} = \frac{385}{12}$

Ans: (D) $\frac{385}{12}$

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20. $3\frac{5}{7} \times 3\frac{3}{4} =$

Convert to improper fractions first: $3\frac{5}{7} = \frac{26}{7},\ 3\frac{3}{4} = \frac{15}{4}$

$\frac{26}{7} \times \frac{15}{4} = \frac{195}{14}$

Ans: (D) $\frac{195}{14}$

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21. $\frac{20}{11} \div \frac{13}{14} =$

$\frac{20}{11} \div \frac{13}{14} = \frac{20}{11} \times \frac{14}{13}$ (multiply by the reciprocal)

$= \frac{280}{143}$

Ans: (A) $\frac{280}{143}$

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22. $\frac{8}{15} \div 6 =$

$\frac{8}{15} \div 6 = \frac{8}{15} \div \frac{6}{1} = \frac{8}{15} \times \frac{1}{6}$

$= \frac{4}{45}$

Ans: (C) $\frac{4}{45}$

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23. The smallest among $\frac{1}{2}, \frac{1}{29}, \frac{1}{30}, \frac{1}{3}$ is

$2 < 3 < 29 < 30$ (all have the same sign)

$\Rightarrow \frac{1}{2} > \frac{1}{3} > \frac{1}{29} > \frac{1}{30}$

So the smallest is $\frac{1}{30}$.

Ans: (D) $\frac{1}{30}$

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24. If $-2 < 1$, then multiplying both sides by -3 gives

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

$-3 \times (-2) = 6$, $-3 \times 1 = -3$, so $6 > -3$

Ans: (D) $6 > -3$

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25. The part of the number line from 0 to 1 is divided into 9 equal parts. The 7th point to the right of 0 is

Each part $= \frac{1}{9}$.

7 parts to the right of 0: $\frac{7}{9}$

Ans: (B) $\frac{7}{9}$