



Improper Fractions, Mixed Numbers and Same-Denominator Operations

Name: _____

Class: _____

1. Convert the improper fraction $\frac{17}{5}$ into a mixed number.

A. $3\frac{2}{5}$

B. $2\frac{3}{5}$

C. $3\frac{1}{5}$

D. $5\frac{2}{3}$

2. Convert the mixed number $4\frac{3}{7}$ into an improper fraction.

A. $\frac{28}{7}$

B. $\frac{31}{7}$

C. $\frac{43}{7}$

D. $\frac{19}{7}$

3. Which of the following is equal to the improper fraction $\frac{18}{6}$?

A. 2

B. 3

C. 4

D. 6

4. Which fraction is the greatest?

$$\frac{3}{8}, \frac{7}{8}, \frac{5}{8}, \frac{2}{8}$$

A. $\frac{3}{8}$

B. $\frac{7}{8}$

C. $\frac{5}{8}$

D. $\frac{2}{8}$

5. Arrange the following numbers in order from the smallest to the greatest.

$$\frac{9}{4}, 2, \frac{5}{4}, \frac{11}{4}$$

A. $\frac{5}{4}, 2, \frac{9}{4}, \frac{11}{4}$

B. $\frac{5}{4}, \frac{9}{4}, 2, \frac{11}{4}$

C. $2, \frac{5}{4}, \frac{9}{4}, \frac{11}{4}$

D. $\frac{11}{4}, \frac{9}{4}, 2, \frac{5}{4}$

6. Calculate $\frac{2}{9} + \frac{5}{9}$. Give the answer in the lowest terms.

A. $\frac{7}{18}$

B. $\frac{7}{9}$

C. $\frac{10}{9}$

D. $\frac{3}{9}$

7. Calculate $\frac{11}{12} - \frac{5}{12}$. Give the answer in the lowest terms.

A. $\frac{6}{12}$

B. $\frac{1}{2}$

C. $\frac{4}{12}$

D. $\frac{16}{12}$

8. Calculate $\frac{1}{6} + \frac{5}{6} + \frac{3}{6}$. Give the answer as a mixed number in the lowest terms.

A. $1\frac{1}{2}$

B. $\frac{9}{6}$

C. $1\frac{3}{6}$

D. $\frac{3}{2}$

9. Calculate $\frac{7}{8} + \frac{5}{8} - \frac{3}{8}$. Give the answer as a mixed number in the lowest terms.

A. $\frac{9}{8}$

B. $1\frac{1}{8}$

C. $1\frac{5}{8}$

D. $\frac{15}{8}$

10. Calculate $3 - \frac{5}{6} + \frac{1}{6}$. Give the answer as a mixed number.

A. $2\frac{1}{3}$

B. $2\frac{2}{6}$

C. $3\frac{1}{3}$

D. $\frac{14}{6}$

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Answers

1 A

An improper fraction can be written as a mixed number by dividing the numerator by the denominator.

Divide: $17 \div 5 = 3$ remainder 2.

$$\text{So } \frac{17}{5} = 3\frac{2}{5}.$$

The whole-number part is the quotient 3, and the proper fraction part is the remainder over the same denominator, $\frac{2}{5}$.

2 B

To change a mixed number into an improper fraction, multiply the whole number by the denominator and then add the numerator. Keep the same denominator.

$$4 \times 7 = 28$$

$$28 + 3 = 31$$

$$\text{So } 4\frac{3}{7} = \frac{31}{7}.$$

3 B

When the numerator is a multiple of the denominator, the improper fraction is equal to a whole number.

Divide: $18 \div 6 = 3$ with no remainder.

$$\text{So } \frac{18}{6} = 3.$$

4 B

When fractions have the same denominator, the fraction with the greatest numerator is the greatest.

Compare the numerators: $7 > 5 > 3 > 2$.

Therefore $\frac{7}{8}$ is the greatest.

5 A

Write the whole number as a fraction with denominator 4: $2 = \frac{8}{4}$.

Now compare the numerators of fractions with the same denominator:

$5 < 8 < 9 < 11$

So from smallest to greatest: $\frac{5}{4}, 2, \frac{9}{4}, \frac{11}{4}$.

6 B

When adding fractions with the same denominator, add the numerators and keep the denominator.

$$\frac{2}{9} + \frac{5}{9} = \frac{2+5}{9} = \frac{7}{9}$$

The H.C.F. of 7 and 9 is 1, so $\frac{7}{9}$ is already in the lowest terms.

7 B

When subtracting fractions with the same denominator, subtract the numerators and keep the denominator.

$$\frac{11}{12} - \frac{5}{12} = \frac{11 - 5}{12} = \frac{6}{12}$$

Reduce to the lowest terms: divide the numerator and the denominator by their H.C.F., which is 6.

$$\frac{6 \div 6}{12 \div 6} = \frac{1}{2}$$

8 A

Add the numerators and keep the common denominator.

$$\frac{1}{6} + \frac{5}{6} + \frac{3}{6} = \frac{1 + 5 + 3}{6} = \frac{9}{6}$$

Reduce: H.C.F. of 9 and 6 is 3, so $\frac{9 \div 3}{6 \div 3} = \frac{3}{2}$.

As a mixed number: $\frac{3}{2} = 1\frac{1}{2}$.

9 B

Work from left to right. First add, then subtract, keeping the same denominator.

$$\frac{7}{8} + \frac{5}{8} = \frac{12}{8}$$

$$\frac{12}{8} - \frac{3}{8} = \frac{9}{8}$$

As a mixed number: $\frac{9}{8} = 1\frac{1}{8}$.

$1\frac{1}{8}$ is already in the lowest terms because the H.C.F. of 1 and 8 is 1.

Write the whole number as a fraction with denominator 6: $3 = \frac{18}{6}$.

Then work from left to right:

$$\frac{18}{6} - \frac{5}{6} = \frac{13}{6}$$

$$\frac{13}{6} + \frac{1}{6} = \frac{14}{6}$$

Reduce: H.C.F. of 14 and 6 is 2, so $\frac{14 \div 2}{6 \div 2} = \frac{7}{3}$.

As a mixed number: $\frac{7}{3} = 2\frac{1}{3}$.