

8. FRACTIONS

Equivalent Fractions

Teaching Task

Multiple Choice Questions

1. a) $\frac{2}{3}$

Divide both the numerator and the denominator by 4 $\frac{8 \div 4}{12 \div 4} = \frac{2}{3}$

2. a) $\frac{7}{4}$

To divide the fractions $\frac{7}{10}$ by $\frac{2}{5}$, follow these steps:

Invert the second fraction (flip $\frac{2}{5}$ to $\frac{5}{2}$).

Multiply the first fraction by the inverted second fraction: $\frac{7}{10} \times \frac{5}{2} = \frac{7 \times 5}{10 \times 2} = \frac{35}{20}$

Simplify the result: $\frac{35}{20}$ can be simplified by dividing both the numerator and the denominator by their greatest common divisor, which is 5:

$$\frac{35 \div 5}{20 \div 5} = \frac{7}{4}$$

3. b) $\frac{5}{12}$

we can compare them by finding a common denominator or converting them to decimal form.

0.375 (for $\frac{3}{8}$), 0.4167 (for $\frac{5}{12}$), 0.4 (for $\frac{2}{5}$), 0.3333 (for $\frac{1}{3}$)

The largest fraction is $\frac{5}{12}$, which is approximately 0.4167.

4. a) $\frac{3}{4}$

To simplify the fraction $\frac{12}{16}$, you need to divide both the numerator and the denominator by their greatest common divisor (GCD).

The GCD of 12 and 16 is 4.

Divide both the numerator and the denominator by 4: $\frac{12 \div 4}{16 \div 4} = \frac{3}{4}$

So, the simplified form of $\frac{12}{16}$ is $\frac{3}{4}$.

5. a) $\frac{5}{7}$

To add $\frac{2}{7}$ and $\frac{3}{7}$, since the denominators are the same, you can simply

add the numerators: $\frac{2}{7} + \frac{3}{7} = \frac{2+3}{7} = \frac{5}{7}$

6. Answer: c) $\frac{2}{3}$

Explanation: To check if a fraction is equivalent to $\frac{4}{9}$, simplify the given

fractions. $\frac{4}{9}$ is equivalent to $\frac{8}{18}$, $\frac{12}{27}$, and $\frac{16}{36}$. However, c) $\frac{2}{3}$ is not

equivalent to $\frac{4}{9}$.

ADVANCED LEVEL

More than One Answer Type

7. Answer: a) Find a common denominator, b) Add the numerators and keep the denominator the same, and c) Simplify the resulting fraction

Explanation: To add fractions with the same denominator, you keep the denominator the same and add the numerators. If the fractions have different denominators, you need to find a common denominator before adding. After adding, simplify the fraction if necessary.

8. Answer: d) Find a common denominator before dividing

Explanation: When dividing fractions, you invert the second fraction and multiply. There's no need to find a common denominator for division.

Fill In the Blanks

9. Answer: numerators, denominators

Explanation: When multiplying fractions, multiply the numerators (top numbers) together and the denominators (bottom numbers) together.

10. Answer: unlike

Explanation: Fractions with different denominators are called unlike fractions.

Matching Type

11. Match each fraction with its corresponding operation result or equivalent fraction.

1. $\frac{3}{4}$ ----- **D.** $\frac{6}{8}$

2. $\frac{1}{2}$ ----- **C.** $\frac{5}{10}$

3. $\frac{2}{3}$ ----- **A.** $\frac{4}{6}$

4. $\frac{4}{5}$ ----- **B.** $\frac{8}{10}$

Explanation: Each fraction is matched with its equivalent form by multiplying both the numerator and denominator by the same number.

Answer the Following Questions

12. Answer: $\frac{2}{3}$

Explanation: To simplify $\frac{16}{24}$, divide both the numerator and the denominator by their greatest common divisor, which is 8. $16 \div 8 = 2$, and $24 \div 8 = 3$.

13. Answer: $\frac{12}{27}$

Explanation: To find an equivalent fraction for $\frac{4}{9}$ by multiplying the numerator and denominator by 3, multiply both: $4 \times 3 = 12$ and $9 \times 3 = 27$, so the equivalent fraction is $\frac{12}{27}$.

LEARNERS TASK

CONCEPTUAL UNDERSTANDING QUESTIONS (CUQ's)

Multiple Choice Questions

1. Answer: a) $\frac{6}{8}$

Explanation: To find an equivalent fraction to $\frac{3}{4}$, multiply both the numerator and denominator by 2. $3 \times 2 = 6$, and $4 \times 2 = 8$, so $\frac{6}{8}$ is equivalent to $\frac{3}{4}$.

2. Answer: a) $\frac{2}{3}$

Explanation: To subtract fractions, first find a common denominator. The denominator of $\frac{5}{6}$ and $\frac{1}{3}$ is 6. Convert $\frac{1}{3}$ to $\frac{2}{6}$, then subtract: $\frac{5}{6} - \frac{2}{6} = \frac{3}{6}$, which simplifies to $\frac{2}{3}$.

3. Answer: d) $\frac{1}{2}$

Explanation: $\frac{1}{2}$ is the smallest fraction when compared with $\frac{3}{4}$, $\frac{5}{6}$, and $\frac{7}{8}$. To compare, convert the fractions to decimals: $\frac{3}{4} = 0.75$, $\frac{5}{6} = 0.8333$, $\frac{7}{8} = 0.875$, and $\frac{1}{2} = 0.5$.

4. Answer: a) $\frac{6}{20}$

Explanation: When multiplying fractions, multiply the numerators and denominators. $\frac{2}{5} \times \frac{3}{4} = \frac{6}{20}$. This can be simplified to $\frac{3}{10}$.

5. Answer: b) $\frac{2}{5}$ and $\frac{3}{5}$

Explanation: Like fractions have the same denominator. In this case, $\frac{2}{5}$ and $\frac{3}{5}$ have the denominator of 5.

6. Answer: b) 10

Explanation: The least common denominator (LCD) of $\frac{3}{5}$ and $\frac{7}{10}$ is 10. $\frac{3}{5}$ can be converted to $\frac{6}{10}$.

Advanced Level

More than One Answer Type

7. Answer: a) $\frac{6}{8}$, b) $\frac{9}{12}$, d) $\frac{12}{16}$

Explanation: All of these fractions are equivalent to $\frac{3}{4}$ because you can multiply the numerator and denominator of $\frac{3}{4}$ by the same number: $\frac{3}{4} \times \frac{2}{2} = \frac{6}{8}$, $\frac{3}{4} \times \frac{3}{3} = \frac{9}{12}$, $\frac{3}{4} \times \frac{4}{4} = \frac{12}{16}$.

8. Answer: a) Find a common denominator, c) Adjust the fractions to have the same denominator

Explanation: To subtract fractions, they must have the same denominator. Once the fractions are adjusted, you subtract the numerators and keep the denominator.

Fill In the Blanks

9. Answer: numerator, denominator

Explanation: To find equivalent fractions, you can multiply or divide both the numerator and the denominator by the same number.

10. Answer: denominator

Explanation: To add fractions with the same denominator, you add the numerators and keep the denominator the same.

Matching Type

11. 11. Match each pair of fractions with whether they are like or unlike fractions.

1. $\frac{2}{7}$ and $\frac{5}{7}$ ----- C. Like fractions

2. $\frac{3}{8}$ and $\frac{4}{6}$ ----- A. Unlike fractions

3. $\frac{5}{9}$ and $\frac{2}{9}$ ----- C. Like fractions

4. $\frac{1}{3}$ and $\frac{1}{4}$ ----- A. Unlike fractions

Explanation: Like fractions have the same denominator, while unlike fractions have different denominators.

Answer the Following Questions

12. Answer: a. Ascending: $\frac{1}{5}$, $\frac{3}{5}$, $\frac{4}{5}$; Descending: $\frac{4}{5}$, $\frac{3}{5}$, $\frac{1}{5}$

b. Ascending: $\frac{1}{12}$, $\frac{3}{12}$, $\frac{5}{12}$; Descending: $\frac{5}{12}$, $\frac{3}{12}$, $\frac{1}{12}$

c. Ascending: $\frac{1}{6}$, $\frac{5}{6}$, $\frac{8}{6}$; Descending: $\frac{8}{6}$, $\frac{5}{6}$, $\frac{1}{6}$

13. Answer: $\frac{7}{7}$ or 1

Explanation: $\frac{2}{7} + \frac{5}{7} = \frac{7}{7} = 1$.

FINDING THE FRACTION OF A NUMBER

Teaching Task

Multiple Choice Questions

1. Answer: A) $7/4$

Explanation: To convert 1.75 to a fraction, write 1.75 as $175/100$. Simplifying $175/100$ by dividing both the numerator and denominator by 25 gives $7/4$.

2. Answer: C) $5/9$

Explanation: A fraction less than 1 has a numerator smaller than the denominator. $5/9$ is less than 1, while the other options are greater than 1.

3. Answer: B) 12

Explanation: To find $3/4$ of 16, multiply 16 by $3/4$: $16 \times 3/4 = 48/4 = 12$.

4. Answer: A) $3/4$

Explanation: Simplify $27/36$ by dividing both the numerator and denominator by 9: $27 \div 9 / 36 \div 9 = 3/4$.

5. Answer: C) $9/4$

Explanation: An improper fraction has a numerator greater than or equal to the denominator. $9/4$ is an improper fraction.

6. Answer: A) $2 \frac{3}{4}$

Explanation: To convert $11/4$ to a mixed number, divide 11 by 4. The quotient is 2, and the remainder is 3, so the mixed number is $2 \frac{3}{4}$.

Advanced Level

More than One Answer Type

7. Answer: B) Divide the numerator by the denominator, C) Find the remainder

Explanation: To convert an improper fraction to a mixed number, divide the numerator by the denominator to get the whole number, and the remainder forms the numerator of the fractional part.

8. Answer: A) $5/7$, C) $11/13$

Explanation: A fraction is in its simplest form if the numerator and denominator have no common factors other than 1. $5/7$ and $11/13$ are in their simplest forms, while $8/12$ simplifies to $2/3$, and $6/9$ simplifies to $2/3$.

Fill In the Blanks

9. Answer: improper

Explanation: $14/7$ is an improper fraction because the numerator (14) is greater than or equal to the denominator (7).

10. Answer: $1/3$

Explanation: 2 wholes and $1/3$ make a mixed number of $2 \frac{1}{3}$.

Matching Type

11. Answer:

1. 20 ----- C. $\frac{4}{5} \times 25$

2. 35 ----- D. $\frac{7}{10} \times 50$

3. $7/9$ ----- A. $28/36$

4. $2/3$ ----- B. $10/15$

Answer the Following Questions

12. Answer: 6 pieces

Explanation: Raj ate $2/5$ of the cake, and the cake was cut into 15 pieces. $2/5 \times 15 = 6$ pieces.

13. Answer: 70 pages

Explanation: Sheena read $3/8$ of 80 pages on Saturday and $4/8$ of 80 pages on Sunday.

On Saturday: $3/8 \times 80 = 30$ pages.

On Sunday: $4/8 \times 80 = 40$ pages.

Total: $30 + 40 = 70$ pages.

LEARNERS TASK

CONCEPTUAL UNDERSTANDING QUESTIONS (CUQ's)

Multiple Choice Questions

1. Answer: A) 35

Explanation: To find $7/10$ of 50, multiply 50 by $7/10$: $50 \times 7/10 = 350/10 = 35$.

2. Answer: A) $2/3$

Explanation: Simplify $16/24$ by dividing both the numerator and denominator by 8: $16 \div 8 / 24 \div 8 = 2/3$.

3. Answer: C) $2/3$

Explanation: A proper fraction has a numerator smaller than the denominator. $2/3$ is a proper fraction, while the others are improper.

4. Answer: C) 14

Explanation: To find $7/4$ of 21, multiply 21 by $4/7$: $21 \times 4/7 = 84/7 = 14$.

5. Answer: A) $3/4$

Explanation: Simplify $45/60$ by dividing both the numerator and denominator by 15: $45 \div 15 / 60 \div 15 = 3/4$.

6. Answer: B) 10

Explanation: To find $2/5$ of 25, multiply 25 by $2/5$: $25 \times 2/5 = 50/5 = 10$.

Advanced Level

More than One Answer Type

7. Answer: A) $4/10$, B) $6/15$, C) $8/20$

Explanation: These fractions are equivalent to $2/5$ because you can multiply both the numerator and denominator by the same number:

$$2/5 \times 2/2 = 4/10$$

$$2/5 \times 3/3 = 6/15$$

$$2/5 \times 4/4 = 8/20$$

8. Answer: A) $1 \frac{1}{2}$, C) $2 \frac{3}{4}$

Explanation: Mixed fractions have both a whole number and a fractional part. $1 \frac{1}{2}$ and $2 \frac{3}{4}$ are mixed fractions, while $7/3$ is an improper fraction, and $5/8$ is a proper fraction.

Fill In the Blanks

9. Answer: multiply, denominator, 15

Explanation: To find $3/5$ of 25, first multiply 25 by the numerator (3), then divide the result by the denominator (5). The answer is 15.

10. Answer: 6, $3/4$

Explanation: To simplify $18/24$, divide both the numerator and denominator by their greatest common factor, which is 6.

$$18 \div 6 / 24 \div 6 = 3/4.$$

Matching Type

11. Answer

1. $3\frac{1}{4}$ ----- D. $\frac{13}{4}$

2 Mixed Fraction ----- C. Combines a whole number and a proper fraction

3. Improper Fraction ----- B. Numerator is greater than Denominator

4. Proper Fraction ----- A. Numerator is less than Denominator

Answer the Following Questions

12. Answer: $6/8$ or $3/4$

Explanation: Aman ate $1/8$ of the pizza, and Karan ate $5/8$ of the pizza. Together, they ate $1/8 + 5/8 = 6/8 = 3/4$ of the pizza.

13. Answer: 87 cm

Explanation: Mrs. Chandran is 145 cm tall, and her daughter is $3/5$ of her height. $3/5 \times 145 = 435/5 = 87$ cm.