Name _____

Practice
9-6

Finding Common Denominators

In **1** through **8**, find a common denominator for each pair of fractions. **Sample answers are given.**

1. $\frac{2}{5}$ and $\frac{3}{4}$ **20**

2. $\frac{5}{8}$ and $\frac{4}{9}$ **72**

3. $\frac{1}{4}$ and $\frac{4}{7}$ **28**

4. $\frac{5}{12}$ and $\frac{7}{9}$ **36**

5. $\frac{7}{15}$ and $\frac{1}{3}$ **15**

6. $\frac{1}{2}$ and $\frac{2}{3}$ **6**

7. $\frac{2}{9}$ and $\frac{4}{5}$ **45**

8. $\frac{7}{8}$ and $\frac{5}{6}$ **24**

In **9** through **16**, find a common denominator for each pair of fractions. Then rename each fraction in the pair.
Sample answers are given.

9. $\frac{3}{12}$ and $\frac{3}{8}$
24; $\frac{6}{24}$, $\frac{9}{24}$

10. $\frac{1}{8}$ and $\frac{2}{7}$
56; $\frac{7}{56}$, $\frac{16}{56}$

11. $\frac{1}{2}$ and $\frac{2}{9}$
18; $\frac{9}{18}$, $\frac{4}{18}$

12. $\frac{1}{3}$ and $\frac{1}{5}$
15; $\frac{5}{15}$, $\frac{3}{15}$

13. $\frac{7}{9}$ and $\frac{1}{6}$
18; $\frac{14}{18}$, $\frac{3}{18}$

14. $\frac{1}{6}$ and $\frac{3}{4}$
12; $\frac{2}{12}$, $\frac{9}{12}$

15. $\frac{7}{8}$ and $\frac{2}{3}$
24; $\frac{21}{24}$, $\frac{16}{24}$

16. $\frac{3}{8}$ and $\frac{5}{6}$
24; $\frac{9}{24}$, $\frac{20}{24}$

17. Train A arrives at Central Station on the hour and every 12 minutes. Train B arrives on the hour and every 15 minutes. When do both trains arrive at the same time?

A On the hour and 30 minutes past the hour

B On the hour and 15 minutes to the hour

C On the hour and 27 minutes past the hour

D On the hour only

18. Andrew wants to rename $\frac{2}{7}$ and $\frac{3}{4}$ using a common denominator. Which of the following shows these fractions renamed correctly?

A $\frac{8}{28}$ and $\frac{21}{28}$

B $\frac{2}{28}$ and $\frac{3}{28}$

C $\frac{4}{28}$ and $\frac{6}{28}$

D $\frac{2}{7}$ and $\frac{3}{7}$

19. Manuel says that you can use one of the denominators of $\frac{5}{6}$ and $\frac{11}{30}$ when renaming these fractions using a common denominator. Why is this true?

Sample answer: You can use 30 as the common denominator since 30 is a common multiple of 6 and 30.

Name _____

Practice
9-7

Adding Fractions with Unlike Denominators

Find each sum. Simplify if necessary.

1. $\frac{2}{9} + \frac{1}{3}$ $\frac{5}{9}$
2. $\frac{1}{7} + \frac{3}{21}$ $\frac{2}{7}$
3. $\frac{2}{3} + \frac{1}{5}$ $\frac{13}{15}$
4. $\frac{1}{4} + \frac{2}{3}$ $\frac{11}{12}$
5. $\frac{1}{12} + \frac{4}{6}$ $\frac{3}{4}$
6. $\frac{1}{2} + \frac{2}{5}$ $\frac{9}{10}$
7. $\frac{1}{6} + \frac{5}{12}$ $\frac{7}{12}$
8. $\frac{4}{6} + \frac{1}{3}$ 1
9. $\frac{1}{5} + \frac{1}{8}$ $\frac{13}{40}$
10. $\frac{3}{4} + \frac{1}{9}$ $\frac{31}{36}$
11. $\frac{6}{12} + \frac{1}{3}$ $\frac{5}{6}$
12. $\frac{4}{8} + \frac{1}{2}$ 1

Jeremy collected nickels for one week. He is making stacks of his nickels to determine how many he has. The thickness of one nickel is $\frac{1}{16}$ inch.

13. How tall is a stack of 16 nickels?

    1 inch

14. What is the combined height of 3 nickels, 2 nickels, and 1 nickel?

    $\frac{3}{8}$ inch

15. What is the sum of $\frac{5}{30} + \frac{4}{6}$?

    (A) $\frac{5}{6}$ B $\frac{7}{9}$ C $\frac{2}{3}$ D $\frac{9}{12}$

16. How do you rename $\frac{2}{5}$ so you can add it to $\frac{11}{25}$? What is the sum?

    Use 25 as the common denominator. Multiply the numerator and denominator by 5 to get $\frac{10}{25}$. The sum is $\frac{21}{25}$.

Name _____

Practice
9-8

Subtracting Fractions with Unlike Denominators

Find the difference. Simplify if necessary.

1. $\frac{10}{12} - \frac{1}{4}$ $\frac{7}{12}$
2. $\frac{9}{10} - \frac{3}{5}$ $\frac{3}{10}$
3. $\frac{7}{8} - \frac{2}{6}$ $\frac{13}{24}$
4. $\frac{7}{12} - \frac{1}{4}$ $\frac{1}{3}$
5. $\frac{4}{5} - \frac{1}{3}$ $\frac{7}{15}$
6. $\frac{2}{3} - \frac{1}{6}$ $\frac{1}{2}$
7. $\frac{4}{8} - \frac{1}{4}$ $\frac{1}{4}$
8. $\frac{4}{10} - \frac{1}{5}$ $\frac{1}{5}$
9. $\frac{9}{9} - \frac{2}{3}$ $\frac{1}{3}$
10. $\frac{9}{15} - \frac{1}{3}$ $\frac{4}{15}$
11. $\frac{4}{12} - \frac{1}{6}$ $\frac{1}{6}$
12. $\frac{14}{20} - \frac{3}{5}$ $\frac{1}{10}$

13. The pet shop owner told Jean to fill her new fish tank $\frac{3}{4}$ full with water. Jean filled it $\frac{9}{12}$ full. What fraction of the tank does Jean still need to fill? 0

14. Paul's dad made a turkey potpie for dinner on Wednesday. The family ate $\frac{4}{8}$ of the pie. On Thursday after school, Paul ate $\frac{2}{16}$ of the pie for a snack. What fraction of the pie remained? $\frac{3}{8}$

15. Gracie read 150 pages of a book. The book is 227 pages long. Which equation shows the amount she still needs to read to finish the story?

A $150 - n = 227$

B $227 + 150 = n$

C $n - 150 = 227$

D $n + 150 = 227$

16. Why do fractions need to have a common denominator before you add or subtract them?

The denominator tells you how many equal parts you are adding or subtracting. The parts must be the same when you add or subtract.

Name _____

Practice
10-1

Improper Fractions and Mixed Numbers

1. Draw a picture to show $\frac{8}{6}$.

2. Draw a picture to show $3\frac{5}{6}$.

Check students' drawings.

Write each improper fraction as a whole number or mixed number in simplest form.

3. $\frac{30}{6}$ **5**

4. $\frac{47}{9}$ $5\frac{2}{9}$

5. $\frac{52}{7}$ $7\frac{3}{7}$

Write each mixed number as an improper fraction.

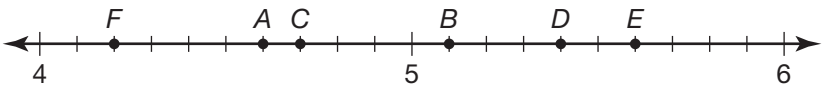
6. $4\frac{4}{5}$ $\frac{24}{5}$

7. $13\frac{3}{4}$ $\frac{55}{4}$

8. $9\frac{5}{8}$ $\frac{77}{8}$

9. Write 8 as an improper fraction with a denominator of 4. $\frac{32}{4}$

Which letter on the number line corresponds to each number?



10. $\frac{27}{5}$ **D**

11. $4\frac{7}{10}$ **C**

12. $4\frac{3}{5}$ **A**

13. Which number does the model represent?

A $\frac{12}{8}$

B $2\frac{3}{8}$

C $2\frac{4}{7}$

D $\frac{20}{8}$

14. Can you express $\frac{9}{9}$ as a mixed number? Why or why not?

No, $\frac{9}{9}$ can be expressed only as a fraction or as a whole number (1).

Name _____

Practice
10-4

Adding Mixed Numbers

In **1** through **6**, find each sum. Simplify, if possible. Estimate for reasonableness.

1. $7\frac{2}{3} + 8\frac{5}{6}$ $16\frac{1}{2}$

2. $4\frac{3}{4} + 2\frac{2}{5}$ $7\frac{3}{20}$

3. $11\frac{9}{10} + 3\frac{1}{20}$ $14\frac{19}{20}$

4. $7\frac{6}{7} + 5\frac{2}{7}$ $13\frac{1}{7}$

5. $5\frac{8}{9} + 3\frac{1}{2}$ $9\frac{7}{18}$

6. $21\frac{11}{12} + 17\frac{2}{3}$ $39\frac{7}{12}$

7. Write two mixed numbers that have a sum of 3.

Sample answer: $1\frac{1}{4} + 1\frac{3}{4} = 3$

8. What is the total measure of an average man's brain and heart in kilograms (kg)?

$1\frac{7}{10}$ kg

Vital Organ Measures

Average woman's brain	$1\frac{3}{10}$ kg	$2\frac{4}{5}$ lb
Average man's brain	$1\frac{2}{5}$ kg	3 lb
Average human heart	$\frac{3}{10}$ kg	$\frac{7}{10}$ lb

9. What is the total weight of an average woman's brain and heart in pounds (lb)?

$3\frac{1}{2}$ lb

10. What is the sum of the measures of an average man's brain and an average woman's brain in kilograms?

$2\frac{7}{10}$ kg

11. Which is a good comparison of the estimated sum and the actual sum of $7\frac{7}{8} + 2\frac{11}{12}$?

A Estimated < actual

B Actual = estimated

C Actual > estimated

D Estimated > actual

12. Can the sum of two mixed numbers be equal to 2? Explain why or why not.

No; Sample answer: It is impossible for two mixed numbers to equal 2 because every mixed number is greater than 1.

Name _____

Practice
10-5

Subtracting Mixed Numbers

For **1** through **10**, find each difference. Simplify, if possible.

1. $10\frac{3}{4} - 7\frac{1}{4}$ = $3\frac{1}{2}$

2. $7\frac{3}{7} - 2\frac{8}{21}$ = $5\frac{1}{21}$

3. $3 - 2\frac{2}{3}$ = $\frac{1}{3}$

4. $17\frac{7}{8} - 12\frac{3}{12}$ = $5\frac{5}{8}$

5. $9\frac{5}{9} - 6\frac{5}{6}$ = $2\frac{13}{18}$

6. $4\frac{3}{4} - 2\frac{2}{3}$ = $2\frac{1}{12}$

7. $6\frac{1}{4} - 3\frac{1}{3}$ = $2\frac{11}{12}$

8. $5\frac{1}{5} - 3\frac{7}{8}$ = $1\frac{13}{40}$

9. $8\frac{2}{7} - 7\frac{1}{3}$ = $\frac{20}{21}$

10. $2\frac{9}{10} - 2\frac{1}{3}$ = $\frac{17}{30}$

The table shows the length and width of several kinds of bird eggs.

Egg Sizes in Inches (in.)

Bird	Length	Width
Canada goose	$3\frac{2}{5}$	$2\frac{3}{10}$
Robin	$\frac{3}{4}$	$\frac{3}{5}$
Turtledove	$1\frac{1}{5}$	$\frac{9}{10}$
Raven	$1\frac{9}{10}$	$1\frac{3}{10}$

11. How much longer is the Canada goose egg than the raven egg?

$1\frac{1}{2}$ in. longer

12. How much wider is the turtledove egg than the robin egg?

$\frac{3}{10}$ in. wider

13. Which is the difference of $21\frac{15}{16} - 18\frac{3}{4}$?

A $2\frac{7}{16}$ **B** $2\frac{9}{16}$ **C** $3\frac{3}{16}$ **D** $3\frac{9}{16}$

14. Explain why it is necessary to rename $4\frac{1}{4}$ if you subtract $\frac{3}{4}$ from it.

Sample answer: You cannot subtract $\frac{3}{4}$ from $\frac{1}{4}$, so you must borrow 1 whole from the 4 and rename $4\frac{1}{4}$ as $3\frac{5}{4}$.

