Name _____ Date _____ Class _____

LESSON 4-8

Practice B

Adding and Subtracting with Like Denominators

Subtract. Write your answers in simplest form.

1. $1 - \frac{4}{7}$ _____

2. $\frac{18}{24} - \frac{10}{24}$ _____

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

4. $8\frac{11}{13} - 5\frac{2}{13}$ _____

5. $5 - 3\frac{1}{4}$ _____

6. $2 - 1\frac{2}{7}$ _____

7. $6\frac{8}{9} - 4\frac{6}{9}$ _____

8. $7\frac{4}{11} - 6\frac{3}{11}$ _____

9. $10 - 5\frac{3}{5}$ _____

Evaluate $\frac{14}{15} - x$ for each value of x. Write your answers in simplest form.

10. $x = \frac{12}{15}$ _____

11. $x = \frac{2}{15}$ _____

12. $x = \frac{9}{15}$ _____

13. $x = \frac{5}{15}$ _____

Write the sum or difference in simplest form.

14. $\frac{17}{21} - \frac{2}{21}$ _____

15. $\frac{13}{32} + \frac{9}{32}$ _____

16. $\frac{2}{15} + \frac{8}{15}$ _____

17. $27\frac{76}{100} - 14\frac{26}{100}$ _____

18. $\frac{1}{15} + \frac{4}{15} + \frac{5}{15}$ _____

19. $\frac{9}{26} + \frac{2}{26} + \frac{5}{26}$ _____

20. Maria has 8 gallons of paint she wants to use in three rooms of her house. If she uses $2\frac{1}{4}$ gallons of the paint in the bedroom and $1\frac{1}{4}$ in the bathroom, how many gallons will she have left to paint the playroom?

_____

21. Sandy, Ben, and Kwan picked strawberries. Sandy picked $\frac{8}{25}$ of their combined total of strawberries. Ben picked $\frac{7}{25}$ of their strawberries. How much of the strawberries did Kwan pick?

_____

Name _____ Date _____ Class _____

LESSON 5-5

Practice B

Least Common Multiple

Find the least common multiple (LCM).

1. 2 and 5 _____

2. 4 and 3 _____

3. 6 and 4 _____

4. 6 and 8 _____

5. 5 and 9 _____

6. 4 and 5 _____

7. 10 and 15 _____

8. 8 and 12 _____

9. 6 and 10 _____

10. 3, 6, and 9 _____

11. 2, 5, and 10 _____

12. 4, 7, and 14 _____

13. 3, 5, and 9 _____

14. 2, 5, and 8 _____

15. 3, 9, and 12 _____

16. Mr. Stevenson is ordering shirts and hats for his Boy Scout troop. There are 45 scouts in the troop. Hats come in packs of 3, and shirts come in packs of 5. What is the least number of packs of each he should order to so that each scout will have 1 hat and 1 shirt, and none will be left over?

_____

17. Tony wants to make 36 party bags. Glitter pens come in packs of 6. Stickers come in sheets of 4, and balls come in packs of 3. What is the least number of each package he should buy to have 1 of each item in every party bag, and no supplies left over?

_____

18. Glenda is making 30 school supply baskets. Notepads come in packs of 5. Erasers come in packs of 15, and markers come in packs of 3. What is the least number of each package she should buy to have 1 of each item in every basket, and no supplies left over?

_____

Name _____ Date _____ Class _____

LESSON 5-7

Reteach

Adding and Subtracting with Unlike Denominators

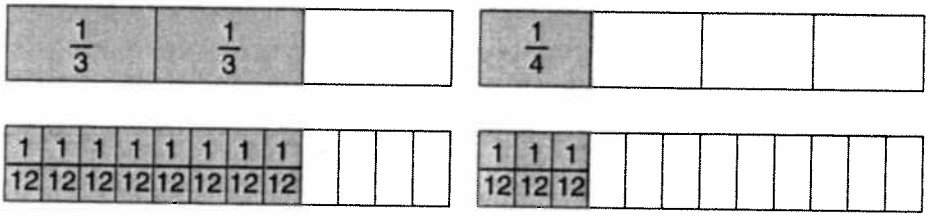
Unlike fractions have different denominators. To add and subtract fractions, you must have a common denominator. The least common denominator (LCD) is the least common multiple of the denominators.

To add or subtract unlike fractions, first find the LCD of the fractions.

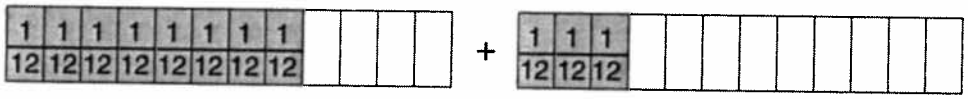
A. $\frac{2}{3} + \frac{1}{4}$

Multiples of 4: 4, 8, **12**,...
Multiples of 3: 3, 6, 9, **12**,...
The LCD is 12.

Next, use fraction strips to find equivalent fractions.



Then use fraction strips to find the sum or difference.



$\frac{8}{12} + \frac{3}{12} = \frac{11}{12}$

So, $\frac{2}{3} + \frac{1}{4} = \frac{11}{12}$.

Use fraction strips to find each sum or difference. Write your answer in simplest form.

1. $\frac{1}{4} + \frac{1}{8}$ _____

2. $\frac{5}{6} - \frac{2}{3}$ _____

3. $\frac{3}{4} - \frac{1}{3}$ _____

4. $\frac{3}{5} + \frac{3}{10}$ _____

5. $\frac{3}{4} + \frac{1}{6}$ _____

6. $\frac{1}{2} + \frac{3}{8}$ _____

7. $\frac{2}{3} - \frac{1}{6}$ _____

8. $\frac{1}{3} - \frac{1}{4}$ _____

Name _____ Date _____ Class _____

LESSON 5-7

Practice B

Adding and Subtracting with Unlike Denominators

Add or subtract. Write your answers in simplest form.

1. $\frac{6}{7} + \frac{1}{3}$ _____

2. $\frac{3}{7} - \frac{2}{5}$ _____

3. $\frac{1}{4} + \frac{3}{8}$ _____

4. $\frac{7}{8} - \frac{2}{3}$ _____

5. $\frac{1}{6} + \frac{3}{5}$ _____

6. $\frac{5}{6} - \frac{2}{3}$ _____

7. $\frac{5}{9} - \frac{1}{3}$ _____

8. $\frac{7}{8} + \frac{3}{4}$ _____

9. $\frac{5}{12} - \frac{1}{6}$ _____

10. $\frac{4}{5} - \frac{7}{11}$ _____

11. $\frac{4}{9} + \frac{5}{6}$ _____

12. $\frac{5}{8} + \frac{2}{3}$ _____

Evaluate each expression for $b = \frac{1}{3}$. Write your answers in simplest form.

13. $b + \frac{5}{8}$ _____

14. $\frac{7}{9} - b$ _____

15. $\frac{2}{7} + b$ _____

16. $b + b$ _____

17. $\frac{11}{12} - b$ _____

18. $\frac{3}{4} - b$ _____

19. There are three grades in Kyle's middle school—sixth, seventh, and eighth. One-third of the students are in sixth grade and $\frac{1}{4}$ are in seventh grade. What fraction of the schools' students are in eighth grade?

_____

20. Sarah is making a dessert that calls for $\frac{4}{5}$ cup of crushed cookies. If she has already crushed $\frac{7}{10}$ cup, how much more does she need?

_____

Name _____ Date _____ Class _____

LESSON 5-8

Reteach

Adding and Subtracting Mixed Numbers

You can use what you know about improper fractions to add and subtract mixed numbers.

To find the sum or difference of mixed numbers, first write the mixed numbers as improper fractions.

A. $3\frac{1}{4} + 2\frac{1}{3}$

$= \frac{13}{4} + \frac{7}{3}$

Next, find equivalent fractions with a least common denominator.

$\frac{13}{4} + \frac{7}{3}$

$= \frac{39}{12} + \frac{28}{12}$

Then add or subtract the like fractions.

$\frac{39}{12} + \frac{28}{12}$

$= \frac{67}{12}$

Write the answer as a mixed number in simplest form.

$\frac{67}{12}$

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

So, $3\frac{1}{4} + 2\frac{1}{3} = 5\frac{7}{12}$.

B. $4\frac{1}{2} - 2\frac{2}{3}$

$= \frac{9}{2} - \frac{8}{3}$

$\frac{9}{2} - \frac{8}{3}$

$= \frac{27}{6} - \frac{16}{6}$

$\frac{27}{6} - \frac{16}{6}$

$= \frac{11}{6}$

$\frac{11}{6}$

$= 1\frac{5}{6}$

So, $4\frac{1}{2} - 2\frac{2}{3} = 1\frac{5}{6}$.

Find each sum or difference. Write your answer in simplest form.

1. $1\frac{1}{4} + 1\frac{1}{2}$

$= \frac{\ }{4} + \frac{\ }{2}$

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

_____

2. $3\frac{1}{6} + 1\frac{2}{3}$

$= \frac{\ }{6} + \frac{\ }{3}$

$= \frac{\ }{6} + \frac{\ }{6}$

_____

3. $2\frac{1}{8} + 4\frac{1}{2}$

$= \frac{\ }{8} + \frac{\ }{2}$

$= \frac{\ }{8} + \frac{\ }{8}$

_____

4. $4\frac{1}{3} + 1\frac{1}{2}$

$= \frac{\ }{3} + \frac{\ }{2}$

$= \frac{\ }{6} + \frac{\ }{6}$

_____

5. $2\frac{3}{5} + 1\frac{1}{10}$

_____

6. $3\frac{1}{6} + 1\frac{1}{12}$

_____

7. $2\frac{5}{8} - 1\frac{1}{4}$

_____

8. $5\frac{2}{3} - 2\frac{1}{4}$

_____

Name _____ Date _____ Class _____

LESSON 5-8

Practice B

Adding and Subtracting Mixed Numbers

Find each sum or difference. Write each answer in simplest form.

1. $4\frac{3}{8} + 5\frac{1}{4}$ _____

2. $11\frac{2}{5} - 8\frac{1}{3}$ _____

3. $7\frac{1}{3} + 3\frac{2}{9}$ _____

4. $22\frac{5}{6} - 17\frac{1}{4}$ _____

5. $32\frac{4}{7} - 14\frac{1}{3}$ _____

6. $12\frac{1}{4} + 5\frac{1}{12}$ _____

7. $29\frac{1}{3} - 14\frac{1}{6}$ _____

8. $5\frac{3}{4} - 1\frac{7}{11}$ _____

9. $21\frac{1}{6} + 1\frac{3}{8}$ _____

10. $15\frac{7}{12} - 14\frac{3}{8}$ _____

11. $5\frac{6}{15} + 4\frac{3}{10}$ _____

12. $25\frac{1}{7} + 25\frac{2}{5}$ _____

13. $3\frac{2}{5} + 1\frac{1}{3}$ _____

14. $1\frac{2}{5} - 1\frac{2}{10}$ _____

15. $3\frac{3}{5} - 2\frac{1}{2}$ _____

16. $6\frac{3}{4} - 3\frac{3}{10}$ _____

17. $4\frac{4}{5} + 2\frac{1}{10}$ _____

18. $32\frac{1}{2} + 5\frac{1}{3}$ _____

19. Donald is making a party mix. He bought $2\frac{1}{4}$ pounds of pecans and $3\frac{1}{5}$ pounds of walnuts. How many pounds of nuts did Donald buy in all? _____

20. Mrs. Watson's cookie recipe calls for $3\frac{4}{7}$ cups of sugar. Mr. Clark's cookie recipe calls for $4\frac{2}{3}$ cups of sugar. How much more sugar does Mr. Clark's recipe use? _____

21. Tasha's cat weighs $15\frac{5}{12}$ lb. Naomi's cat weighs $11\frac{1}{3}$ lb. Can they bring both of their cats to the vet in a carrier that can hold up to 27 pounds? Explain.

_____

_____

Name _____ Date _____ Class _____

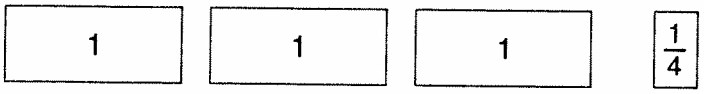
LESSON 5-9

Reteach

Renaming to Subtract Mixed Numbers

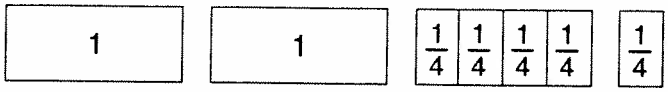
You can use fraction strips to rename to subtract mixed numbers.

To find $3\frac{1}{4} - 1\frac{3}{4}$, first model the first mixed number in the expression.

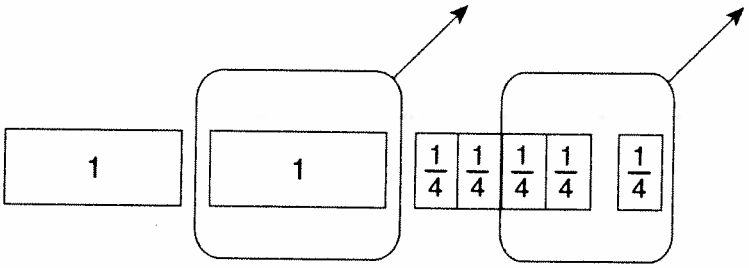


There are not enough $\frac{1}{4}$ pieces to subtract, so you have to rename.

Trade one one-whole strip for four $\frac{1}{4}$ pieces, because $\frac{4}{4} = 1$.



Now there are enough $\frac{1}{4}$ pieces to subtract. Take away $1\frac{3}{4}$.



The remaining pieces represent the difference. Write the difference in simplest form.

$3\frac{1}{4} - 1\frac{3}{4} = 1\frac{2}{4} = 1\frac{1}{2}$

Use fraction strips to find each difference. Write your answer in simplest form.

1. $3\frac{1}{4} - 2\frac{3}{4}$ _____

2. $3\frac{1}{6} - 1\frac{5}{6}$ _____

3. $4\frac{3}{8} - 1\frac{7}{8}$ _____

4. $3\frac{1}{3} - 2\frac{2}{3}$ _____

5. $5\frac{5}{12} - 2\frac{7}{12}$ _____

6. $3\frac{3}{10} - 1\frac{9}{10}$ _____

7. $5\frac{1}{8} - 1\frac{5}{8}$ _____

8. $4 - 1\frac{1}{3}$ _____

9. $3\frac{1}{8} - 1\frac{3}{8}$ _____

10. $2\frac{1}{8} - 1\frac{7}{8}$ _____

11. $3 - 1\frac{1}{4}$ _____

12. $6\frac{3}{8} - 2\frac{5}{8}$ _____

Name _____ Date _____ Class _____

LESSON 5-9

Practice B

Renaming to Subtract Mixed Numbers

Subtract. Write the answer in simplest form.

1. $4 - 2\frac{3}{8}$ _____

2. $5\frac{1}{6} - 2\frac{2}{3}$ _____

3. $14 - 8\frac{2}{9}$ _____

4. $19\frac{1}{7} - 5\frac{1}{3}$ _____

5. $7\frac{1}{4} - 3\frac{5}{8}$ _____

6. $10\frac{1}{5} - 5\frac{7}{10}$ _____

7. $1\frac{1}{6} - \frac{7}{9}$ _____

8. $9\frac{1}{4} - 1\frac{7}{16}$ _____

9. $6\frac{1}{5} - 3\frac{1}{4}$ _____

Evaluate each expression for $a = 1\frac{1}{2}$, $b = 2\frac{1}{3}$, $c = \frac{1}{4}$, and $d = 3$. Write each answer in simplest form.

10. $b - a$ _____

11. $a - c$ _____

12. $b - c$ _____

13. $d - a$ _____

14. $d - b$ _____

15. $d - c$ _____

16. Tim had 6 feet of wrapping paper for Kylie's birthday present. He used $3\frac{3}{8}$ feet of the paper to wrap her gift. How much paper did Tim have left? _____

17. At his last doctor's visit, Pablo was $60\frac{1}{2}$ inches tall. At today's visit, he measured $61\frac{1}{6}$ inches. How much did Pablo grow between visits? _____

18. Yesterday, Danielle rode her bike for $5\frac{1}{2}$ miles. Today, she rode her bike for $6\frac{1}{4}$ miles. How much farther did Danielle ride her bike today? _____

Name _____ Date _____ Class _____

LESSON 5-5

Problem Solving

Least Common Multiple

Use the table to answer the questions.

Party Supplies

Item	Number per Pack
Invitations	12
Balloons	30
Paper plates	10
Paper napkins	24
Plastic cups	15
Noise makers	5

1. You want to have an equal number of plastic cups and paper plates. What is the least number of packs of each you can buy?

_____

_____

2. You want to invite 48 people to a party. What is the least number of packs of invitations and napkins you should buy to have one for each person and none left over?

_____

_____

3. You want to have an equal number of noisemakers and balloons at your party. What is the least number of packs of each you can buy?

_____

_____

4. You bought an equal number of packs of plates and cups so that each of your 20 guests would have 3 cups and 2 plates. How many packs of each item did you buy?

_____

_____

Circle the letter of the correct answer.

5. The LCM for three items listed in the table is 60 packs. Which of the following are those three items?

   A balloons, plates, noise makers

   B noise makers, invitations, balloons

   C napkins, cups, plates

   D balloons, napkins, plates

6. To have one of each item for 120 party guests, you buy 10 packs of one item and 24 packs of the other. What are those two items?

   F plates and invitations

   G balloons and cups

   H napkins and plates

   J invitations and noise makers

Name _____ Date _____ Class _____

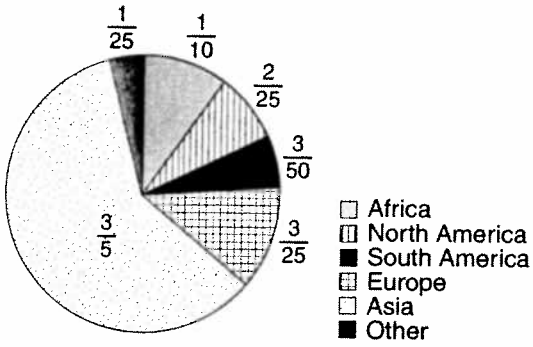
LESSON 5-7

Problem Solving

Adding and Subtracting with Unlike Denominators

Use the circle graph to answer the questions. Write each answer in simplest form.

World Population, 2001



1. On which two continents do most people in the world live? How much of the total population do they make up together?

_____

_____

2. How much of the world's population live in either North America or South America?

_____

3. How much more of the world's total population lives in Asia than in Africa?

_____

4. How much of Earth's total population do people in Asia and Africa make up all together?

_____

5. What is the difference between North America's part of the total population and Africa's part?

_____

Circle the letter of the correct answer.

6. How much more of the population lives in Europe than in North America?

   A $\frac{1}{25}$ of the population

   B $\frac{1}{5}$ of the population

   C $\frac{1}{15}$ of the population

   D $\frac{1}{10}$ of the population

7. How much of the world's population lives in North America and Europe?

   F $\frac{1}{25}$ of the population

   G $\frac{1}{15}$ of the population

   H $\frac{1}{5}$ of the population

   J $\frac{1}{20}$ of the population

Name _____ Date _____ Class _____

LESSON 5-8

Problem Solving

Adding and Subtracting Mixed Numbers

Write the correct answer in simplest form.

1. Of the planets in our solar system, Jupiter and Neptune have the greatest surface gravity. Jupiter's gravitational pull is $2\frac{16}{25}$ stronger than Earth's, and Neptune's is $1\frac{1}{5}$ stronger. What is the difference between Jupiter's and Neptune's surface gravity levels?

_____

2. Escape velocity is the speed a rocket must attain to overcome a planet's gravitational pull. Earth's escape velocity is $6\frac{9}{10}$ miles per second! The Moon's escape velocity is $5\frac{2}{5}$ miles per second slower. How fast does a rocket have to launch to escape the moon's gravity?

_____

3. The two longest total solar eclipses occurred in 1991 and 1992. The first one lasted $6\frac{5}{6}$ minutes. The eclipse of 1992 lasted $5\frac{1}{3}$ minutes. How much longer was 1991's eclipse?

_____

4. The two largest meteorites found in the U.S. landed in Canyon Diablo, Arizona, and Willamette, Oregon. The Arizona meteorite weighs $33\frac{1}{10}$ tons! Oregon's weighs $16\frac{1}{2}$ tons. How much do the two meteorites weigh in all?

_____

Circle the letter of the correct answer.

5. Not including the Sun, Proxima Centauri is the closest star to Earth. It is $4\frac{11}{50}$ light years away! The next closest star is Alpha Centauri. It is $\frac{13}{100}$ light years farther than Proxima. How far is Alpha Centauri from Earth?

   A $4\frac{7}{20}$ light years

   B $4\frac{13}{100}$ light years

   C $4\frac{6}{25}$ light years

   D $4\frac{1}{50}$ light years

6. It takes about $5\frac{1}{3}$ minutes for light from the Sun to reach Earth. The Moon is closer to Earth, so its light reaches Earth faster—about $5\frac{19}{60}$ minutes faster than from the Sun. How long does light from the Moon take to reach Earth?

   F $\frac{3}{10}$ of a minute

   G $\frac{1}{60}$ of a minute

   H $\frac{1}{3}$ of a minute

   J $\frac{4}{15}$ of a minute

Name _____ Date _____ Class _____

LESSON 5-9

Problem Solving

Renaming to Subtract Mixed Numbers

Write the correct answer in simplest form.

1. The average person in the United States eats $6\frac{13}{16}$ pounds of potato chips each year. The average person in Ireland eats $5\frac{15}{16}$ pounds. How much more potato chips do Americans eat a year than people in Ireland?

_____

2. The average person in the United States eats $270\frac{1}{16}$ pounds of meat each year. The average person in Australia eats $238\frac{1}{2}$ pounds. How much more meat do Americans eat a year than people in Australia?

_____

3. The average Americans eats $24\frac{1}{2}$ pounds of ice cream every year. The average person in Israel eats $15\frac{4}{5}$ pounds. How much more ice cream do Americans eat each year?

_____

4. People in Switzerland eat the most chocolate—26 pounds a year per person. Most Americans eat $12\frac{9}{16}$ pounds each year. How much more chocolate do the Swiss eat?

_____

5. The average person in the United States chews $1\frac{9}{16}$ pounds of gum each year. The average person in Japan chews $\frac{7}{8}$ pound. How much more gum do Americans chew?

_____

6. Norwegians eat the most frozen foods—$78\frac{1}{2}$ pounds per person each year. Most Americans eat $35\frac{15}{16}$ pounds. How much more frozen foods do people in Norway eat?

_____

Circle the letter of the correct answer.

7. Most people around the world eat $41\frac{7}{8}$ pounds of sugar each year. Most Americans eat $66\frac{3}{4}$ pounds. How much more sugar do Americans eat than the world's average?

   A $25\frac{7}{8}$ pounds more

   B $25\frac{1}{8}$ pounds more

   C $24\frac{7}{8}$ pounds more

   D $24\frac{1}{8}$ pounds more

8. The average person eats 208 pounds of vegetables and $125\frac{5}{8}$ pounds of fruit each year. How much more vegetables do most people eat than fruit?

   F $83\frac{5}{8}$ pounds more

   G $82\frac{3}{8}$ pounds more

   H $123\frac{5}{8}$ pounds more

   J $83\frac{3}{8}$ pounds more