

3-1 Practice**Fractions and Decimals**

Write each fraction as a decimal. Use a bar to show a repeating decimal.

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

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

3. $\frac{9}{11}$

4. $-\frac{3}{16}$

5. $\frac{3}{40}$

6. $\frac{8}{11}$

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

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

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

10. $-\frac{11}{15}$

11. $-\frac{12}{16}$

12. $\frac{13}{60}$

13. $\frac{1}{45}$

14. $-\frac{5}{24}$

15. $\frac{13}{20}$

16. $\frac{17}{18}$

17. $-\frac{1}{4}$

18. $\frac{5}{11}$

19. $-\frac{2}{3}$

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

Replace each \bullet with $<$, $>$, or $=$ to make a true sentence.

21. $-\frac{13}{2} \bullet -6.4$

22. $\frac{6}{7} \bullet \frac{5}{6}$

23. $-0.75 \bullet -\frac{15}{20}$

24. $-\frac{3}{8} \bullet -0.40$

25. $\frac{7}{8} \bullet \frac{8}{9}$

26. $-\frac{33}{100} \bullet -0.\overline{3}$

27. Order $\frac{4}{9}$, $\frac{444}{1000}$, and 0.4 from least to greatest.

28. Order $-\frac{8}{9}$, $-\frac{8}{10}$, and $-0.\overline{80}$ from least to greatest.

29. **OPINION** In a school survey, 787 out of 1000 students preferred hip-hop music to techno. Is this figure more or less than $\frac{7}{9}$ of those surveyed? Explain.

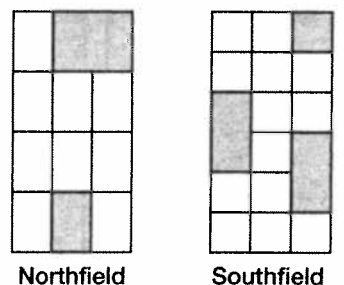
3-1 Word Problem Practice

Fractions and Decimals

1. **TAX** Ted pays $\frac{2}{7}$ of his salary in taxes, while Carl pays $\frac{5}{16}$ of his salary in taxes. Who pays more of his salary in taxes?

2. **ROCKS** Jan and Bob are classifying rocks in geology class. They begin the classification by finding the weight of each rock. Jan's rock weighs $\frac{6}{100}$ kg while Bob's weighs 0.016 kg. Whose rock is heavier?

3. **BUILDING LOT** The two one-acre lots in the diagram below are subdivided equally by the lines shown. The shaded areas in each lot have been set aside for housing.



Which of the two lots, Northfield or Southfield, has the greater area of land set aside for housing? To the nearest hundredth, what is the total acreage of land within both lots that is set aside for housing?

4. **TESTS** Petra earned scores of $\frac{30}{32}$, $\frac{29}{31}$, and $\frac{28}{30}$ on her last three English quizzes. Find each score as a decimal rounded to the nearest thousandth. Arrange the fractions in order from least to greatest.

5. **PAINT** Angie is mixing together yellow paint and blue paint to make 2 shades of green paint. She will mix the paint in two canisters. She will fill $\frac{4}{9}$ of canister A with yellow paint; she will fill 0.46 of canister B with yellow paint. She fills the rest of each can with blue paint.

- a. In which canister will Angie pour more yellow paint?
- b. To the nearest hundredth of a canister, how much more blue paint than yellow paint does Angie use in all?
- c. Angie can paint one room with $\frac{2}{3}$ of a canister of one shade of green paint. She will need $\frac{5}{8}$ of a canister of the same shade of green paint for a second room. Does Angie have enough of this shade of green paint to finish the second room? If not, how much additional paint will she need? Express your answer in decimal form.

Lesson 3-1

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3-6 Skills Practice***Adding and Subtracting Unlike Fractions***

Find each sum or difference. Write in simplest form.

1. $\frac{4}{7} + \frac{1}{3}$

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

3. $\frac{1}{2} + \left(-\frac{3}{10}\right)$

4. $-\frac{5}{6} + \frac{7}{9}$

5. $\frac{5}{12} + \frac{23}{24}$

6. $\frac{10}{11} - \frac{1}{2}$

7. $\frac{4}{5} - \left(-\frac{1}{3}\right)$

8. $\frac{5}{6} - \frac{1}{12}$

9. $\frac{19}{20} + \frac{1}{4}$

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

11. $\frac{13}{15} - \frac{2}{3}$

12. $\frac{7}{10} + \frac{1}{5}$

13. $-\frac{3}{8} + \frac{1}{6}$

14. $\frac{33}{100} - \frac{1}{10}$

15. $\frac{11}{12} - \left(-\frac{7}{8}\right)$

16. $\frac{4}{5} - \frac{1}{8}$

17. $5\frac{2}{3} + 2\frac{1}{6}$

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

19. $3\frac{2}{3} - \frac{1}{9}$

20. $23\frac{3}{4} - 12\frac{5}{16}$

21. $-7\frac{1}{2} + \frac{3}{4}$

22. $2\frac{2}{3} + 1\frac{1}{4}$

23. $-12\frac{1}{2} - 17\frac{1}{2}$

24. $12\frac{1}{3} - \frac{3}{5}$

25. $11\frac{15}{16} - 7\frac{1}{2}$

26. $8\frac{5}{9} + 1\frac{1}{6}$

27. $-7\frac{1}{2} + 3\frac{1}{7}$

28. $60\frac{1}{2} + \left(-37\frac{1}{6}\right)$

29. $8\frac{2}{3} - 3\frac{1}{3}$

30. $-21\frac{7}{16} + 13\frac{1}{4}$

3-6 Practice**Adding and Subtracting Unlike Fractions**

Find each sum or difference. Write in simplest form.

1. $\frac{9}{10} + \frac{1}{2}$

2. $\frac{7}{8} + \frac{1}{10}$

3. $-\frac{3}{4} + \frac{5}{16}$

4. $\frac{4}{5} - \frac{2}{6}$

5. $\frac{5}{8} - \frac{3}{16}$

6. $\frac{1}{3} + \frac{5}{36}$

7. $\frac{7}{10} - \frac{14}{100}$

8. $\frac{17}{21} - \frac{4}{6}$

9. $\frac{11}{14} - \frac{1}{6}$

10. $\frac{4}{15} - \left(-\frac{3}{12}\right)$

11. $\frac{7}{15} + \frac{3}{6}$

12. $-\frac{7}{8} + \frac{9}{10}$

13. $10\frac{1}{2} + 7\frac{1}{3}$

14. $7\frac{1}{2} - 2\frac{7}{10}$

15. $8\frac{1}{6} + 5\frac{3}{4}$

16. $7\frac{7}{12} - 5\frac{1}{3}$

17. $6\frac{4}{5} + \left(-2\frac{3}{8}\right)$

18. $16\frac{3}{5} + 3\frac{11}{15}$

19. $18\frac{3}{5} - 7\frac{1}{4}$

20. $12\frac{2}{7} - 3\frac{5}{6}$

21. $2\frac{5}{8} + 6\frac{3}{4}$

22. $29\frac{8}{33} + \left(-3\frac{1}{3}\right)$

23. $-6\frac{2}{7} - 5\frac{3}{14}$

24. $-16\frac{2}{7} - 3\frac{20}{31}$

25. $-10\frac{1}{9} + 9\frac{7}{45}$

26. $\frac{1}{3} + \frac{5}{6} + \frac{1}{2}$

27. $9\frac{2}{7} - 11\frac{18}{21}$

28. $-17\frac{2}{3} - \left(-5\frac{4}{18}\right)$

29. $11\frac{3}{16} - 5\frac{1}{12}$

30. $\frac{64}{143} - \frac{21}{208}$

31. **SEWING** The inseam on Juan's pants is $34\frac{1}{4}$ inches. If he has them shortened by $2\frac{7}{8}$ inches, what is the new length?

3-6 Word Problem Practice

Adding and Subtracting Unlike Fractions

1. MILK A jug contains $3\frac{1}{6}$ pints of milk.

Ashley's family poured out $1\frac{2}{3}$ pints of milk during breakfast. How much milk remains in the jug?

2. WOODWORKING Jane is building a basic stand using wooden blocks. A

wooden block that is $\frac{5}{8}$ inch thick is glued to a wooden block that is $\frac{3}{4}$ inch thick. What is the combined thickness of the two blocks of wood?

3. TILING A designer places four identical tiles on a surface and spaces them $3\frac{5}{16}$ inches apart. Each tile is $7\frac{1}{4}$ inches wide.



What is the length from the outside edge of the first tile to the outside edge of the last tile?

4. RUNNING Ron wants to run 6 miles this week. He ran $1\frac{2}{3}$ miles on Monday, $1\frac{2}{5}$ miles on Tuesday, and $1\frac{3}{4}$ miles on Wednesday. How many more miles does he need to run to reach his goal for the week?

5. MONEY MANAGEMENT Sandy worked extremely hard at her job and earned a large bonus at the end of the year. She wanted to share her bonus with her family. She decided to give her children $\frac{2}{5}$ of her bonus and her grandchildren $\frac{1}{4}$ of her bonus.

a. How much of her bonus is Sandy keeping for herself?

b. Sandy has a childhood friend who is like a sister to her. If she gives her friend $\frac{1}{8}$ of her bonus, how much will she be keeping for herself?

3-3 Practice**Multiplying Rational Numbers**

Find each product. Write in simplest form.

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

2. $\frac{3}{7} \cdot \frac{21}{39}$

3. $-\frac{3}{4} \cdot \frac{10}{27}$

4. $\frac{11}{14} \cdot \frac{7}{33}$

5. $-\frac{18}{24} \cdot \frac{3}{4}$

6. $\frac{9}{10} \cdot \frac{20}{21}$

7. $-50 \cdot \frac{3}{1000}$

8. $\frac{16}{17} \cdot \left(-\frac{5}{8}\right)$

9. $-\frac{1}{2} \cdot \left(-\frac{20}{27}\right)$

10. $-\frac{14}{15} \cdot \left(-\frac{10}{28}\right)$

11. $4\frac{4}{7} \cdot 9\frac{1}{3}$

12. $-2\frac{14}{25} \cdot \frac{3}{8}$

13. $4\frac{1}{8} \cdot \left(-1\frac{5}{11}\right)$

14. $-5 \cdot \frac{17}{25}$

15. $2\frac{9}{10} \cdot 1\frac{1}{5}$

16. $\frac{6m}{13} \cdot \frac{2}{mn}$

17. $\frac{p}{3} \cdot \frac{1}{q}$

18. $\frac{2u}{v^2} \cdot \frac{3}{u}$

19. $\frac{4x}{3y} \cdot \frac{9y}{2x}$

20. $\frac{2a}{b} \cdot \frac{c}{2d}$

21. $\frac{rs}{9t} \cdot \frac{3}{s^2}$

22. $2x \cdot \frac{1}{4x^2}$

23. $\frac{x^2}{4y} \cdot \frac{16y^2}{3x}$

24. $\frac{2}{r} \cdot \frac{3}{r}$

Evaluate each expression if $a = -\frac{5}{6}$, $b = -3\frac{3}{8}$, and $c = \frac{7}{10}$. Write the product in simplest form.

25. bc

26. ac

27. $4\frac{2}{5}c$

28. $-2abc$

29. $-3\frac{3}{7}ab$

30. $2\frac{1}{9}abc$

31. **AIRPLANES** The fastest retired airliner, the Concorde, had the capability of cruising at speeds of up to 1450 mph. While cruising at this top speed, how far would the Concorde travel in $2\frac{1}{2}$ hours?

3-4 Practice**Dividing Rational Numbers**

Find each quotient. Write in simplest form.

1. $\frac{1}{2} \div \frac{1}{10}$

2. $-\frac{3}{8} \div \frac{9}{24}$

3. $-\frac{15}{16} \div \frac{7}{12}$

4. $\frac{17}{20} \div \left(-\frac{3}{10}\right)$

5. $-\frac{3}{8} \div \left(-\frac{3}{9}\right)$

6. $\frac{25}{32} \div \frac{15}{56}$

7. $0 \div \frac{17}{18}$

8. $-1\frac{1}{2} \div \frac{1}{4}$

9. $\frac{8}{9} \div \frac{22}{81}$

10. $8\frac{4}{9} \div 2\frac{1}{9}$

11. $4\frac{3}{5} \div \frac{2}{5}$

12. $-\frac{100}{63} \div \frac{10}{81}$

13. $18\frac{1}{3} \div \left(-4\frac{1}{6}\right)$

14. $-3\frac{2}{9} \div \frac{4}{27}$

15. $-2\frac{5}{6} \div \frac{3}{51}$

16. $4\frac{11}{12} \div 4\frac{5}{6}$

17. $\frac{2x}{3} \div \frac{1}{9}$

18. $\frac{a}{4} \div \frac{a}{8}$

19. $\frac{4k}{5} \div \frac{25}{2k}$

20. $\frac{ab}{8} \div \frac{b}{a}$

21. $\frac{2c}{b} \div \frac{4a}{b}$

22. $\frac{y}{x} \div y^2$

23. $\frac{3st}{r} \div \frac{4t}{r}$

24. $\frac{a^2}{b^2} \div \frac{c^2}{b^2}$

25. $-\frac{2x}{y} \div \frac{4}{y}$

26. $\frac{m^2}{2np} \div \frac{n}{4p}$

27. Evaluate $x \div y$ if $x = 3\frac{1}{2}$ and $y = \frac{3}{4}$.

28. Evaluate $w \div z$ if $w = \frac{6}{7}$ and $z = 3$.

29. **TRAVEL** What is the average speed that Robin must drive to reach her friend's house 170 miles away in $2\frac{1}{2}$ hours?

30. **SEWING** How many choir robes can be made from $20\frac{1}{4}$ yards of fabric if each robe needs $1\frac{1}{8}$ yards?

Chapter 3 (Operations with Rational Numbers)

Bringing It All Together #1

Vocabulary Check

State whether the statement is *true* or *false*.

If *false*, replace the underlined word or number to make a true sentence.

- _____ 1) Numbers that can be written as fractions are called reciprocals.
- _____ 2) The decimal 4.7 is a terminating decimal.
- _____ 3) The fractions $\frac{4}{6}$ and $\frac{1}{3}$ are like fractions.
- _____ 4) To add unlike fractions, rename the fractions using the GCF.
- _____ 5) A mixed number is another name for the multiplicative inverse.
- _____ 6) The product of a number and its multiplicative inverse is 1.
- _____ 7) Like fractions are fractions that have the same numerator.
- _____ 8) Repeating decimals use bar notation to show which digits terminate.
- _____ 9) You need a common denominator to divide fractions.
- _____ 10) Decimals that repeat or terminate are rational numbers.

3-1 Writing Fractions as Decimals (pp. 121-127)

Write each fraction or mixed number as a decimal.

Use bar notation to show a repeating decimal.

- _____ 11) $\frac{3}{10}$ _____ 12) $\frac{2}{5}$ _____ 13) $-\frac{5}{6}$
- _____ 14) $-7\frac{4}{9}$ _____ 15) $\frac{5}{8}$ _____ 16) $1\frac{4}{15}$

Replace each \bigcirc with $<$, $>$, or $=$ to make a true sentence.

- _____ 17) $2\frac{1}{2} \bigcirc 2\frac{5}{12}$ _____ 18) $\frac{5}{8} \bigcirc 0.625$ _____ 19) $10.74 \bigcirc 10\frac{7}{10}$
- _____ 20) $4.\overline{37} \bigcirc 4\frac{19}{50}$ _____ 21) $-2.54 \bigcirc 2\frac{27}{50}$ _____ 22) $-\frac{4}{5} \bigcirc \frac{1}{7}$

OVER \longrightarrow

Name _____ Date _____ Pd _____

3-2 Rational Numbers (pp. 128-133)

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

_____ 23) 2.08 _____ 24) -0.45 _____ 25) 0.875

_____ 26) -0.56 _____ 27) $0.\bar{1}$ _____ 28) $-2.\overline{03}$

_____ 29) $0.\bar{5}$ _____ 30) $10.\overline{27}$ _____ 31) $1.\bar{6}$

Identify all sets to which each number belongs.

_____ 32) -4 _____ 33) $3\frac{1}{3}$

_____ 34) 1.151551555 ... _____ 35) $-0.\overline{67}$

3-6 Adding and Subtracting Unlike Fractions (pp. 153-158)

Find each sum or difference. Write in simplest form.

_____ 36) $\frac{2}{5} + \frac{1}{15}$ _____ 37) $-3\frac{5}{6} - 2\frac{1}{2}$

_____ 38) $\frac{4}{7} + -1\frac{1}{3}$ _____ 39) $\frac{3}{10} - -\frac{1}{8}$

_____ 40) $25\frac{1}{3} - 14\frac{2}{5}$ _____ 41) $7\frac{3}{4} + 1\frac{3}{8}$

_____ 42) $-\frac{5}{9} - 3\frac{2}{3}$ _____ 43) $-4\frac{1}{6} + \frac{3}{4}$

_____ 44) Monica needs $2\frac{3}{4}$ cups of flour for a batch of cookies and $3\frac{1}{3}$ cups of flour for a dozen muffins. How many cups of flour does Monica need altogether?

_____ 45) Dane and his family drove 357.9 miles in one day. If their trip is a total of $524\frac{3}{4}$ miles, how much farther do they need to drive?

OVER 

Name _____ Date _____ Pd _____

3-3 Multiplying Rational Numbers (pp. 134-139)

Find each product. Write in simplest form.

_____ 46) $\frac{1}{5} \cdot \frac{3}{4}$

_____ 47) $-\frac{3}{7} \cdot \frac{4}{9}$

_____ 48) $-\frac{2}{53} \cdot -5$

_____ 49) $-3\frac{1}{2} \cdot -5\frac{1}{5}$

_____ 50) Mireille has a piece of ribbon that is 10 inches long. Abi's ribbon is $\frac{5}{8}$ as long. How long is Abi's ribbon?

_____ 51) A liter of water weighs approximately $2\frac{1}{5}$ pounds. While backpacking, Enrique wants to carry $3\frac{1}{2}$ liters of water with him. Find the weight of the water that Enrique is taking with him.

3-4 Dividing Rational Numbers (pp. 141-146)

Find the multiplicative inverse of each number.

_____ 52) -16

_____ 53) $\frac{7}{9}$

_____ 54) $3\frac{4}{5}$

_____ 55) $-4\frac{1}{3}$

Find each quotient. Write in simplest form.

_____ 56) $\frac{7}{9} \div -\frac{4}{15}$

_____ 57) $-2\frac{2}{3} \div 2\frac{2}{7}$

_____ 58) $\frac{3}{5} \div \frac{9}{10}$

_____ 59) $3\frac{1}{9} \div -1\frac{1}{6}$

_____ 60) Pilar drinks $1\frac{3}{4}$ glasses of milk each day. At this rate, how many days will it take her to drink a total of 14 glasses?

