REQUIRED SUMMER READING
For Students Entering 6th Grade

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(1) REQUIRED READING: Yes, everyone has to read this book!
(Buy the book, read it over the summer, and bring your book to school; you will need it to complete the in-school assignments.)

Hatchet by Gary Paulsen

(2) You must also read one book from this list:
(You will need to have a copy of the book you read when you come to school.)

Roll of Thunder, Hear My Cry	Mildred D. Taylor
The Tale of Despereaux	Kate DiCamillo
There's A Boy in the Girl's Bathroom	Louis Sachar
Bridge to Terabithia	Katherine Paterson
The Cay	Theodore Taylor
My Side of the Mountain	Jean C. George
Where the Red Fern Grows	Wilson Rawls
Journey Home	Yoshiko Uchida

Math Packet
Summer Exercises
Incoming 6th Grade

Complete all workbook pages; each page shows at least one example demonstrating how to solve the given practice problems. **Please show all work,** if there is not enough room on the worksheet, **complete work on a separate sheet of paper and attach to package.**

Multiplication:

- Multiplying by Tens, Hundreds, Thousands
- Multiplying by Two-Digit Numbers
- Multiplying Decimals

Division:

- Dividing by One Digit Numbers
- Dividing by Two Digit Numbers
- Dividing Decimals by a Whole Number

Rounding Numbers

- Follow Directions—Round to the Nearest Whole, Tenth, Hundredth, Thousandth

Order of Operations – Follow the Five Examples at Top of Page

Fractions:

- A "How To" on Basic Fractions is Included for Review
- Add Fractions with Like/Unlike Denominators
- Add Mixed Numbers
- Subtract Fractions With Like/Unlike Denominators

name

PRACTICE

WORKSHEET **12**

Multiplying by Tens, by Hundreds, and by Thousands

Look for a pattern.

48	48	48
$\times 20$	$\times 200$	$\times 2{,}000$
960	9,600	96,000

Practice • Multiply.

1. 63 $\times$ 20	**2.** 234 $\times$ 20	**3.** 159 $\times$ 100	**4.** 463 $\times$ 200	**5.** 852 $\times$ 1,000

Mixed Practice • Multiply.

6. 239 $\times$ 20	**7.** 376 $\times$ 30	**8.** 179 $\times$ 20	**9.** 292 $\times$ 70	**10.** 585 $\times$ 30
11. 3,724 $\times$ 60	**12.** 1,382 $\times$ 40	**13.** 6,751 $\times$ 50	**14.** 1,538 $\times$ 80	**15.** 4,982 $\times$ 10
16. 32 $\times$ 700	**17.** 98 $\times$ 300	**18.** 78 $\times$ 500	**19.** 38 $\times$ 900	**20.** 62 $\times$ 400
21. 423 $\times$ 400	**22.** 789 $\times$ 600	**23.** 566 $\times$ 200	**24.** 3,981 $\times$ 800	**25.** 7,573 $\times$ 500
26. 52 $\times$ 3,000	**27.** 263 $\times$ 5,000	**28.** 87 $\times$ 6,000	**29.** 309 $\times$ 4,000	**30.** 653 $\times$ 8,000
31. 48 $\times$ 2,000	**32.** 36 $\times$ 1,000	**33.** 256 $\times$ 3,000	**34.** 609 $\times$ 9,000	**35.** 716 $\times$ 5,000

Solve the equations.

36. $60 \times 218 = n$ _____ **37.** $400 \times 6{,}807 = n$ _____

38. $3{,}000 \times 73 = n$ _____ **39.** $7{,}000 \times 152 = n$ _____

40. $90 \times 3{,}240 = n$ _____ **41.** $700 \times 8{,}762 = n$ _____

name

PRACTICE

WORKSHEET **13**

Multiplying by Two-Digit Numbers

Multiply: 38 × 1,376.

Step 1

$$\begin{array}{r} 1,376 \\ \times \quad 38 \\ \hline 11008 \end{array}$$

Step 2

$$\begin{array}{r} 1,376 \\ \times \quad 38 \\ \hline 11008 \\ 4128 \end{array}$$

Step 3

$$\begin{array}{r} 1,376 \\ \times \quad 38 \\ \hline 11008 \\ 4128 \\ \hline 52,288 \end{array}$$

Practice • Estimate the product. Then find the actual product.

1. 48 × 63 **2.** 92 × 36 **3.** 702 × 65 **4.** 916 × 13 **5.** 328 × 92

Multiply.

6. 96 × 28 **7.** 1 × 36 **8.** 34 × 47 **9.** 583 × 94 **10.** 697 × 75

11. 873 × 84 **12.** 7,548 × 24 **13.** 3,629 × 45 **14.** 9,182 × 38 **15.** 8,795 × 27

16. 81 × 29 **17.** 328 × 18 **18.** 471 × 36 **19.** 4,873 × 92 **20.** 2,050 × 48

21. 15,286 × 18 **22.** 34,937 × 31 **23.** 44,506 × 24 **24.** 273,038 × 53 **25.** 157,980 × 74

26. $2.37 × 92 **27.** $7.85 × 86 **28.** $13.58 × 28 **29.** $42.72 × 57 **30.** $275.30 × 68

31. $77.09 × 49 **32.** $903.88 × 37 **33.** $1,192.61 × 82 **34.** $1,630.92 × 43 **35.** $3,341.87 × 69

NAME _____

Lesson 5 Multiplication

number of digits after the decimal point

321	3 21	2	3 21	2	3 21	3
×4	×4	+0	×4	+1	×.04	+2
1284	1284	2	1284	3	.0284	5

$12 \times 27 = 324$, so $12 \times 2.7 =$ _____

and $12 \times .027 =$ _____

$22 \times 18 = 396$, so $2.2 \times 1.8 =$ _____

and $.022 \times 1.8 =$ _____

Multiplication

Multiply.

	a	*b*	*c*	*d*	*e*
1.	2.5 ×.3 7	4 2.1 ×.3 8	3 1 6.4 ×2.6	2.1 6 ×2 4.2	.0 4 2 1 ×3 2.1
2.	4 3 ×.2 8	4 8.6 ×3.1	.0 3 8 2 ×4 1	.3 1 8 ×4.1 2	.0 3 1 6 ×1 1.2
3.	.3 1 ×.1 6	7.3 1 ×.2 4	4 2.1 0 ×.1 3	3 0.8 ×.1 4 1	.0 4 1 2 ×3 0.6
4.	8.4 ×9.2	.5 1 3 ×2.6	3.1 6 0 ×4.3	2.0 4 ×1 0.5	1 2.1 1 ×4 0.1

name

PRACTICE

WORKSHEET **16**

Dividing by One-Digit Numbers

Divide: 387 ÷ 8.

Step 1

$$\begin{array}{r} 4 \\ 8\overline{)387} \\ -32 \\ \hline 67 \end{array}$$

Step 2

$$\begin{array}{r} 48\text{ r}3 \\ 8\overline{)387} \\ -32 \\ \hline 67 \\ -64 \\ \hline 3 \end{array}$$

Practice • Divide.

1. $7\overline{)54}$ **2.** $6\overline{)327}$ **3.** $8\overline{)6{,}077}$ **4.** $3\overline{)\$19.26}$ **5.** $5\overline{)11{,}820}$

Mixed Practice • Divide.

6. $4\overline{)139}$ **7.** $5\overline{)249}$ **8.** $8\overline{)491}$ **9.** $7\overline{)327}$ **10.** $2\overline{)79}$

11. $6\overline{)4{,}433}$ **12.** $9\overline{)4{,}162}$ **13.** $3\overline{)2{,}842}$ **14.** $8\overline{)905}$ **15.** $4\overline{)3{,}277}$

16. $5\overline{)3{,}617}$ **17.** $4\overline{)679}$ **18.** $3\overline{)1{,}852}$ **19.** $7\overline{)3{,}729}$ **20.** $6\overline{)2{,}326}$

21. $6\overline{)745}$ **22.** $9\overline{)7{,}314}$ **23.** $8\overline{)3{,}346}$ **24.** $5\overline{)2{,}684}$ **25.** $4\overline{)749}$

26. $7\overline{)46{,}669}$ **27.** $4\overline{)128{,}652}$ **28.** $6\overline{)\$22.56}$ **29.** $8\overline{)\$52.24}$ **30.** $9\overline{)\$45.63}$

Solve the equations.

31. $2{,}064 \div 4 = n$ _____ **32.** $44{,}296 \div 7 = n$ _____

name

PRACTICE

WORKSHEET **18**

Two-Digit Divisors, Quotients to Four Digits

Divide: 1,976 ÷ 58.

Step 1

$$\begin{array}{r} 3 \\ 58\overline{)1{,}976} \\ -174 \\ \hline 236 \end{array}$$

Step 2

$$\begin{array}{r} 34\text{ r4} \\ 58\overline{)1{,}976} \\ -174 \\ \hline 236 \\ -232 \\ \hline 4 \end{array}$$

Practice • Divide.

1. $54\overline{)2{,}808}$
2. $41\overline{)1{,}245}$
3. $39\overline{)26{,}620}$
4. $27\overline{)14{,}003}$
5. $42\overline{)28{,}889}$
6. $98\overline{)46{,}932}$
7. $56\overline{)22{,}656}$
8. $47\overline{)18{,}936}$

Mixed Practice • Divide.

9. $88\overline{)90{,}478}$
10. $86\overline{)2{,}678}$
11. $40\overline{)2{,}143}$
12. $36\overline{)1{,}764}$
13. $49\overline{)1{,}739}$
14. $22\overline{)1{,}254}$
15. $62\overline{)21{,}582}$
16. $73\overline{)23{,}944}$
17. $60\overline{)32{,}142}$
18. $19\overline{)3{,}230}$
19. $53\overline{)10{,}528}$
20. $84\overline{)156{,}576}$
21. $25\overline{)102{,}661}$
22. $96\overline{)209{,}618}$
23. $30\overline{)38{,}892}$
24. $64\overline{)180{,}311}$

Solve the equations.

25. $20{,}862 \div 38 = n$ _____
26. $70{,}004 \div 43 = n$ _____
27. $120{,}690 \div 54 = n$ _____
28. $142{,}989 \div 77 = n$ _____

name

PRACTICE

WORKSHEET **21**

Order of Operations

Operations are done in a special order.

$6(8-4)$	$\frac{15+5}{4}$	$15+\frac{42}{6}$	$4\times6\div12$	$5+9-6$
$6(4)$	$\frac{20}{4}$	$15+7$	$24\div12$	$14-6$
24	5	22	2	8

Practice • Compute.

1. $(6-2)-4$ _____
2. $6-(2+4)$ _____
3. $6+2-4$ _____
4. $3(8)$ _____
5. $3(8+1)$ _____
6. $\frac{16-4}{3}$ _____
7. $(12-5)-3$ _____
8. $12-(5-3)$ _____
9. $12-5+3$ _____
10. $12+5-3$ _____
11. $8+(7-2)$ _____
12. $(8+7)-2$ _____
13. $8-(7-2)$ _____
14. $8-7+2$ _____
15. $6(7)$ _____
16. $6(7)+4$ _____
17. $6(7+4)$ _____
18. $(7+4)6$ _____
19. $5\times9-3$ _____
20. $5\times(9-3)$ _____
21. $(9-3)\times5$ _____
22. $19-3(5)$ _____
23. $\frac{9}{3}$ _____
24. $\frac{9+6}{3}$ _____
25. $\frac{9}{3}+6$ _____
26. $9+\frac{6}{3}$ _____
27. $8(7-2)$ _____
28. $8(7)-2$ _____
29. $8(7+2)$ _____
30. $8(7)+2$ _____
31. $4\times9\div3$ _____
32. $4\times(9\div3)$ _____
33. $\frac{4(9)}{3}$ _____
34. $\frac{4(12)}{6}$ _____
35. $4(12-6)$ _____
36. $\frac{54}{2}-6$ _____
37. $\frac{54}{6}-2$ _____
38. $\frac{48}{3(4)}$ _____
39. $\frac{48}{4}-3$ _____

name

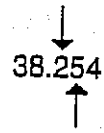
PRACTICE

WORKSHEET **34**

Rounding Decimals

Round 38.254 to the nearest tenth.

Think: The digit in the tenths place is 2.
The digit to the right is 5 or greater.



Round up. Increase the digit in the tenths place by 1.

38.254 rounded to the nearest tenth is 38.3.

Practice • Round the numbers as indicated.

Nearest whole number:

1. 4.91 _____ **2.** 1.8 _____

Nearest tenth:

3. 6.649 _____ **4.** 80.462 _____

Nearest hundredth:

5. 0.188 _____ **6.** 0.543 _____

Nearest thousandth:

7. 7.4376 _____ **8.** 2.6892 _____

Mixed Practice • Round to the nearest whole number.

9. 15.36 _____ **10.** 15.51 _____ **11.** 9.82 _____ **12.** 3.66 _____

13. 33.56 _____ **14.** 40.25 _____ **15.** 11.3 _____ **16.** 25.7 _____

17. 125.3 _____ **18.** 412.8 _____ **19.** 1.975 _____ **20.** 9.203 _____

Round to the nearest tenth.

21. 0.37 _____ **22.** 0.73 _____ **23.** 7.281 _____ **24.** 125.68 _____

25. 19.19 _____ **26.** 5.914 _____ **27.** 1.163 _____ **28.** 10.327 _____

29. 5.72 _____ **30.** 7.896 _____ **31.** 0.75 _____ **32.** 1.483 _____

Round to the nearest hundredth.

33. 5.607 _____ **34.** 1.421 _____ **35.** 15.739 _____ **36.** 0.953 _____

37. 0.318 _____ **38.** 0.249 _____ **39.** 0.532 _____ **40.** 9.655 _____

41. 15.106 _____ **42.** 75.879 _____ **43.** 0.451 _____ **44.** 8.655 _____

Round to the nearest thousandth.

45. 0.8462 _____ **46.** 6.2947 _____ **47.** 1.1136 _____ **48.** 18.7841 _____

49. 35.8926 _____ **50.** 7.2545 _____ **51.** 8.0844 _____ **52.** 1.3209 _____

53. 71.9182 _____ **54.** .0466 _____ **55.** 4.2185 _____ **56.** 12.7224 _____

name

PRACTICE

WORKSHEET **44**

Dividing by a Whole Number

Divide: $14.4 \div 36$.

Step 1

$$36 \overline{)\,14.4}$$

Step 2

$$\begin{array}{r} 0.4 \\ 36 \overline{)\,14.4} \\ -\,144 \\ \hline 0 \end{array}$$

Practice • Estimate. Write the quotient with the decimal point placed correctly.

1. $5 \overline{)\,23.5}$ → 4 7

2. $15 \overline{)\,48.15}$ → 3 21

3. $6 \overline{)\,0.36}$ → 0 06

4. $21 \overline{)\,6.804}$ → 0 324

Divide.

5. $9 \overline{)\,0.72}$

6. $15 \overline{)\,2.220}$

7. $14 \overline{)\,58.94}$

8. $4 \overline{)\,22.4}$

9. $5 \overline{)\,67.85}$

10. $12 \overline{)\,14.76}$

11. $33 \overline{)\,69.3}$

12. $56 \overline{)\,179.76}$

13. $11 \overline{)\,855.8}$

14. $32 \overline{)\,76.8}$

15. $51 \overline{)\,189.72}$

16. $83 \overline{)\,1,190.22}$

17. $31 \overline{)\,131.75}$

18. $23 \overline{)\,41.699}$

19. $54 \overline{)\,173.556}$

20. $62 \overline{)\,367.164}$

1 How to ••••••••••••••••••• Understand Basic Fraction Concepts

Facts to Know

A *fraction* is a part of something. A foot is a fraction of a yard. Fifty cents is a fraction of a dollar. The two numbers in a fraction are called the *numerator* (how many parts you have) and the *denominator* (how many parts in the whole).

There are two important uses of fractions—to compare the sizes of two things and to show the part of the whole.

Proper and Improper Fractions and Mixed Numbers

There are three forms of fractions.

- **Proper fraction**—a fraction in which the numerator is less than the denominator. The value of a proper fraction is always less than one whole.

  Examples: $\frac{2}{3}$ $\frac{9}{10}$ $\frac{5}{7}$ $\frac{11}{15}$

- **Improper fraction**—a fraction in which the numerator is equal to or more than the denominator. The value of an improper fraction is either equal to one or more than one.

  Examples: $\frac{5}{2}$ $\frac{7}{4}$ $\frac{12}{12}$ $\frac{80}{49}$

- **Mixed number**—a whole number and a fraction written side by side.

  Examples: $3\frac{3}{4}$ $5\frac{1}{8}$ $2\frac{1}{3}$ $10\frac{1}{6}$

Changing Improper Fractions to Mixed Numbers

The number $1\frac{1}{2}$ is made up of two parts: 1—a whole number and $\frac{1}{2}$—a fraction.

A whole number and fraction together are a mixed number. The number $1\frac{1}{2}$ is a mixed number. It mixes a whole number and a fraction. The line between the top and bottom of a fraction means divide.

The improper fraction $\frac{3}{2}$ means $3 \div 2$. You can change an improper fraction to a mixed number by dividing. See the sample problem below.

Sample: $\frac{3}{2} = ?$

Step 1 → Divide the numerator (top number) by the denominator (bottom number).

Step 2 → Place your remainder over the number you divided by (the denominator) since the remainder is still a fraction.

$$2\overline{)3} \quad 1 \quad -2 \quad 1$$

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

Changing Mixed Numbers to Improper Fractions

You can change a mixed number to an improper fraction. You must multiply.

Sample: $3\frac{1}{4} = ?$

Step 1 → Multiply the denominator by the whole number. $4 \times 3 = 12$

Step 2 → Add the numerator to that answer. $12 + 1 = 13$

Step 3 → Place your answer over the denominator. $3\frac{1}{4} = \frac{13}{4}$

Facts to Know *(cont.)*

Reducing Fractions to Lowest Terms (Simplest Form)

Reducing a fraction means dividing both the numberator and denominator by a number that divides into them evenly.

Sample: Reduce $\frac{6}{10}$.

Step 1 → Divide both 6 and 10 by a number that goes into them evenly. The number is 2. $\frac{6}{10} \div \frac{2}{2} = \frac{3}{5}$

Step 2 → Check to see whether another number divides evenly into the top and bottom numbers of the new fraction. No number other than one divides evenly into both the numerator and the denominator. The fraction $\frac{3}{5}$ is in simplest form.

Sometimes, however, a fraction can be reduced more than once.

Sample: Reduce $\frac{12}{36}$.

Step 1 → Divide both 12 and 36 by a number that goes into them evenly. The number is 6. $\frac{12 \div 6}{36 \div 6} = \frac{2}{6}$

Step 2 → Check to see whether another number divides evenly into both the top and bottom of the new fraction. The number 2 divides evenly into both. $\frac{2 \div 2}{6 \div 2} = \frac{1}{3}$

Step 3 → Check to see whether another number divides evenly into both the top and bottom of the new number. The fraction $\frac{1}{3}$ is reduced as far as it can be.

A fraction that is reduced as far as it can be is in its lowest terms. This means that the numerator and denominator have no common factor other than 1. This means that the fraction is in simplest form. The fraction $\frac{1}{3}$ is in simplest form.

Finding a Greatest Common Factor

When working with fractions, it is easier if you try to put a fraction into its lowest terms first. Find a number that will divide evenly into both the numerator and denominator.

Sample: Simplify $\frac{24}{32}$.

Step 1 → You can divide by 2. $\frac{24 \div 2}{32 \div 2} = \frac{12}{16}$

Step 2 → However, you can divide by 2 two more times. $\frac{12 \div 2}{16 \div 2} = \frac{6}{8}$ and then $\frac{6 \div 2}{8 \div 2} = \frac{3}{4}$

So, you could have reduced $\frac{24}{32}$ to its simplest form $\frac{3}{4}$ much faster if you had divided both 24 and 32 by its greatest common factor, 8. $\frac{24 \div 8}{32 \div 8} = \frac{3}{4}$

1 How to • • • Understand Basic Fraction Concepts

Facts to Know *(cont.)*

Raising a Fraction to Higher Terms

When adding or subtracting fractions, sometimes it's necessary to raise fractions to higher terms. This is the opposite of reducing. To raise a fraction to higher terms, multiply both the numerator and the denominator of the fraction by the same number.

Sample: Raise $\frac{3}{4}$ to 20ths.

Step 1 → Divide the old denominator into the new denominator. $\frac{20}{4} = 20 \div 4 = 5$

Step 2 → Multiply both the numerator and denominator of the original fraction by 5. $\frac{3 \times 5}{4 \times 5} = \frac{15}{20}$

Step 3 → Check by reducing the new fraction. The reduced answer should be the original fraction. $\frac{15}{20} = \frac{15 \div 5}{20 \div 5} = \frac{3}{4}$

Adding Fractions with the Same Denominator

When the sum of an addition problem is an improper fraction, change the sum to a whole number or a mixed number.

Sample: $4\frac{8}{9} + 3\frac{4}{9} = ?$

Step 1 → Add the numerators of the fractions when the denominators are the same. $8 + 4 = 12$

Step 2 → Write the total over the denominator. $\frac{12}{9}$

Step 3 → Add the whole numbers. $4 + 3 = 7$

Step 4 → Change the improper fraction to a mixed number. $\frac{12}{9} = 1\frac{3}{9}$

Step 5 → Add the mixed number to the total of the whole numbers. $7 + 1\frac{3}{9} = 8\frac{3}{9}$

Remember, always reduce. $8\frac{3}{9} = 8\frac{1}{3}$

Adding Fractions with Different Denominators

When adding fractions with different denominators, find a common denominator.

A *common denominator* is one that can be divided evenly by all the denominators in the problem. The smallest number that can be divided evenly by the other denominators is the least common denominator, finding it saves steps in reducing.

Sample: What is $\frac{1}{2}$ pound of nuts and $\frac{3}{4}$ pound of nuts added together?

Step 1 → Find a common denominator.

Step 2 → The lowest number that can be divided evenly by both denominators 2 and 4 is 4.

Step 3 → Raise $\frac{1}{2}$ to 4ths.

Step 4 → Add the fractions with the least common denominator and change the total to a mixed number.

$$\frac{1}{2} = \frac{2}{4}$$
$$+\frac{3}{4} = \frac{3}{4}$$
$$\frac{5}{4} = 1\frac{1}{4} \text{ pounds of nuts}$$

name

PRACTICE

WORKSHEET **62**

Adding Fractions

Add: $\frac{3}{4}+\frac{5}{8}$.

Step 1

$$\frac{3}{4}=\frac{6}{8}$$
$$+\frac{5}{8}=\frac{5}{8}$$

Step 2

$$\frac{3}{4}=\frac{6}{8}$$
$$+\frac{5}{8}=\frac{5}{8}$$
$$\frac{11}{8}$$

Step 3

$$\frac{3}{4}=\frac{6}{8}$$
$$+\frac{5}{8}=\frac{5}{8}$$
$$\frac{11}{8}=1\frac{3}{8}$$

Practice • Add. Write the answers in lowest terms.

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

2. $\frac{10}{22}+\frac{7}{22}$

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

4. $\frac{5}{13}+\frac{9}{13}$

5. $\frac{2}{15}+\frac{7}{15}$

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

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

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

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

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

Mixed Practice • Add. Write the answers in lowest terms.

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

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

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

14. $\frac{5}{8}+\frac{1}{16}$

15. $\frac{1}{9}+\frac{2}{5}$

16. $\frac{3}{10}+\frac{3}{10}$

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

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

19. $\frac{2}{9}+\frac{4}{9}$

20. $\frac{3}{4}+\frac{5}{6}$

21. $\frac{7}{15}$, $\frac{4}{5}$, $+\frac{2}{3}$

22. $\frac{1}{4}$, $\frac{7}{16}$, $+\frac{5}{8}$

23. $\frac{1}{2}$, $\frac{3}{4}$, $+\frac{5}{6}$

24. $\frac{5}{8}$, $\frac{1}{2}$, $+\frac{3}{4}$

25. $\frac{1}{3}$, $\frac{1}{5}$, $+\frac{9}{10}$

Solve the equations.

26. $\frac{5}{12}+\frac{1}{12}=n$ _____

27. $\frac{2}{5}+\frac{1}{4}=n$ _____

28. $\frac{1}{2}+\frac{4}{7}=n$ _____

29. $\frac{2}{3}+\frac{2}{3}=n$ _____

Use with text pages 172–173.

name

PRACTICE

WORKSHEET **63**

Adding Mixed Numbers

Add: $5\frac{1}{3}+3\frac{4}{7}$.

Step 1

$5\frac{1}{3}=5\frac{\ }{21}$

$+3\frac{4}{7}=3\frac{\ }{21}$

Step 2

$5\frac{1}{3}=5\frac{7}{21}$

$+3\frac{4}{7}=3\frac{12}{21}$

Step 3

$5\frac{1}{3}=5\frac{7}{21}$

$+3\frac{4}{7}=3\frac{12}{21}$

$8\frac{19}{21}$

Practice • Add. Write the answers in lowest terms.

1. $3\frac{4}{15}+6\frac{2}{3}$

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

3. $5\frac{1}{4}+3\frac{2}{7}$

4. $9\frac{1}{6}+5\frac{2}{5}$

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

6. $6\frac{3}{10}+2\frac{3}{10}$

7. $5\frac{2}{5}+2\frac{1}{5}$

8. $8\frac{4}{15}+2\frac{5}{15}$

9. $6\frac{3}{10}+4\frac{1}{10}$

10. $6\frac{2}{9}+3\frac{4}{9}$

Mixed Practice • Add. Write the answers in lowest terms.

11. $5\frac{4}{9}+2\frac{4}{9}$

12. $6\frac{7}{12}+5\frac{1}{12}$

13. $4\frac{1}{9}+3\frac{5}{9}$

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

15. $2\frac{11}{25}+\frac{11}{25}$

16. $2\frac{3}{5}+7\frac{3}{10}$

17. $8+6\frac{3}{5}$

18. $6\frac{1}{5}+7\frac{4}{7}$

19. $6\frac{1}{6}+5\frac{3}{10}$

20. $8\frac{2}{3}+8\frac{1}{15}$

21. $\frac{2}{3}$, $6\frac{5}{6}$, $+5\frac{7}{12}$

22. $1\frac{1}{4}$, $4\frac{6}{16}$, $+3\frac{5}{8}$

23. $2\frac{7}{10}$, $3\frac{1}{2}$, $+8$

24. $4\frac{3}{8}$, 2, $+5\frac{7}{9}$

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

Solve the equations.

26. $6\frac{3}{5}+\frac{3}{4}=n$ _____

27. $9\frac{4}{5}+2\frac{1}{2}=n$ _____

28. $8\frac{2}{3}+8\frac{3}{7}=n$ _____

29. $2\frac{5}{9}+5\frac{1}{2}=n$ _____

name

PRACTICE

WORKSHEET **65**

Subtracting Fractions

Subtract: $\frac{3}{4}-\frac{1}{3}$.

Step 1

$$\frac{3}{4}=\frac{9}{12}$$
$$-\frac{1}{3}=\frac{4}{12}$$

Step 2

$$\frac{3}{4}=\frac{9}{12}$$
$$-\frac{1}{3}=\frac{4}{12}$$
$$\frac{5}{12}$$

Practice • Subtract. Write the answers in lowest terms.

1. $\frac{9}{10}-\frac{3}{10}$
2. $\frac{9}{11}-\frac{5}{11}$
3. $\frac{15}{16}-\frac{11}{16}$
4. $\frac{5}{8}-\frac{3}{8}$
5. $\frac{7}{9}-\frac{4}{9}$
6. $\frac{7}{9}-\frac{2}{3}$
7. $\frac{2}{3}-\frac{5}{12}$
8. $\frac{19}{20}-\frac{1}{5}$
9. $\frac{3}{5}-\frac{1}{4}$
10. $\frac{3}{4}-\frac{1}{7}$

Mixed Practice • Subtract. Write the answers in lowest terms.

11. $\frac{19}{25}-\frac{9}{25}$
12. $\frac{3}{4}-\frac{1}{4}$
13. $\frac{11}{12}-\frac{7}{12}$
14. $\frac{9}{13}-\frac{5}{13}$
15. $\frac{5}{7}-\frac{4}{7}$
16. $\frac{9}{20}-\frac{2}{5}$
17. $\frac{2}{3}-\frac{4}{9}$
18. $\frac{11}{12}-\frac{3}{4}$
19. $\frac{9}{10}-\frac{1}{3}$
20. $\frac{5}{6}-\frac{1}{4}$
21. $\frac{3}{5}-\frac{3}{10}$
22. $\frac{7}{9}-\frac{2}{3}$
23. $\frac{7}{8}-\frac{3}{5}$
24. $\frac{7}{12}-\frac{1}{4}$
25. $\frac{6}{7}-\frac{1}{2}$

Solve the equations.

26. $\frac{15}{24}-\frac{7}{24}=n$ _____
27. $\frac{2}{5}-\frac{3}{10}=n$ _____
28. $\frac{7}{8}-\frac{3}{4}=n$ _____
29. $\frac{6}{7}-\frac{1}{2}=n$ _____

2 How to • • • • • • • • • • • • • • • • Subtract Fractions

Facts to Know

Subtracting Fractions with the Same Denominators

When fractions have the same denominators, subtract the numerators only and place the total over the denominator.

Sample: From a bag that contained $\frac{7}{8}$ pound of birdseed, Margery poured $\frac{3}{8}$ of a pound into the bird feeder. How much birdseed is left?

Step 1 → Subtract the numerators. $7 - 3 = 4$

Step 2 → Write the answer over the denominator. $\frac{4}{8}$

Step 3 → Reduce the final answer. $\frac{4}{8}$ **pound** $= \frac{1}{2}$ **pound**

More on Finding Common Denominators

Sometimes you must change more than one denominator to add or subtract. For example, how would you solve this problem:

Sample: $\frac{1}{2} - \frac{1}{3} = ?$

These fractions have different denominators. You cannot subtract them, nor can only one denominator be changed because 2 won't divide into 3 evenly, and 3 won't divide into 2 evenly. Therefore, you must find a common denominator, a number that both 2 and 3 will divide into evenly.

There are three methods for finding a common denominator.

Method 1— Check the largest denominator in the problem to find out whether it can be divided evenly by the other denominator(s) in the problem.

Sample: $\frac{1}{3} - \frac{1}{6} = ?$

6 can be evenly divided by 3, so there's no need to look for another number.

$$\frac{1}{3} = \frac{2}{6}$$
$$-\frac{1}{6} = \frac{1}{6}$$
$$\frac{1}{6}$$

Method 2—Multiply the denominators together to find a common denominator.

Sample: $\frac{3}{4} - \frac{2}{3} = ?$

Step 1 → Multiply the denominators. The number 12 is the common denominator.

Step 2 → Raise each fraction to 12ths.

Step 3 → Subtract the new fractions.

$$\frac{3}{4} = \frac{9}{12}$$
$$-\frac{2}{3} = \frac{8}{12}$$
$$\frac{1}{12}$$

Method 3—Go through the multiplication table of the largest denominator.

Sample: $\frac{5}{9} - \frac{1}{6} = ?$

Step 1 → Go through the multiplication table of the largest denominator, 9.

$9 \times 1 = 9$ which cannot be divided evenly by 6.

$9 \times 2 = 18$ which can be divided evenly by 6 and 9.

Step 2 → Raise each fraction to 18ths.

Step 3 → Subtract the new fractions.

$$\frac{5}{9} = \frac{10}{18}$$
$$-\frac{1}{6} = \frac{3}{18}$$
$$\frac{7}{18}$$

Facts to Know *(cont.)*

Subtracting Fractions with Different Denominators

When subtracting fractions with different denominators, find a common denominator.

Sample: Lupe walks $\frac{1}{2}$ mile to the train. She stops for coffee at Tom's restaurant, which is $\frac{3}{8}$ mile to the train. How much further does she have to walk after Tom's?

You'll have to subtract $\frac{3}{8}$ from $\frac{1}{2}$, but they don't have common denominators.

Step 1 → Find the least common denominator. The numbers 2 and 8 both evenly divisible by 8.

Step 2 → Raise $\frac{1}{2}$ to eighths.

Step 3 → Subtract the fractions using the least common denominator.

$$\frac{1}{2} = \frac{4}{8}$$
$$-\frac{3}{8} = \frac{3}{8}$$
$$\frac{1}{8} \text{ mile}$$

Subtracting Fractions from a Whole Number

When subtracting fractions from the whole number 1, you must change the number 1 to a fraction with the same numerator and denominator as the denominator in the fraction.

Sample: Ian took one cup of sugar from a bag. He only used $\frac{3}{4}$ cup to make ice tea. How much sugar is left?

Step 1 → Change 1 to a fraction, using the same number for the numerator and denominator as the denominator of the original fraction (1 cup = $\frac{4}{4}$ cup).

Step 2 → Subtract the fractions.

$$1 = \frac{4}{4}$$
$$-\frac{3}{4} = \frac{3}{4}$$
$$\frac{1}{4} \text{ cup left}$$

When subtracting a fraction from a whole number larger than 1, you must regroup.

Sample: $3 - \frac{3}{8} = ?$

Step 1 → Regroup by changing 3 to $2\frac{8}{8}$. (Remeber, $1 = \frac{8}{8}$.)

Step 2 → Subtract.

$$3 = 2\frac{8}{8}$$
$$-\frac{3}{8} = \frac{3}{8}$$
$$2\frac{5}{8}$$

Subtracting Mixed Numbers

You can subtract mixed numbers provided the fractions have the same denominators.

Sample : $4\frac{1}{3} - 1\frac{3}{4} = ?$

Step 1 → Find the lowest common denominator.

Step 2 → Since you can't subtract $\frac{9}{12}$ from $\frac{4}{12}$; regroup 1 as $\frac{12}{12}$ from the 4. Add it to $\frac{4}{12}$.

Step 3 → Subtract the fractions. Then subtract the whole numbers.

$$4\frac{1}{3} = 4\frac{4}{12} = 3\frac{4}{12} + \frac{12}{12} = 3\frac{16}{12}$$
$$-1\frac{3}{4} = 1\frac{9}{12} = -1\frac{9}{12} = -1\frac{9}{12}$$
$$2\frac{7}{12}$$

