Name _____

Practice
1-1

Place Value

For **1–4**, write the place and the value of the underlined digit.

1. 20<u>5</u>,300,005,001 _____

2. <u>6</u>80,525,917,143 _____

3. 10<u>2</u>,105,000,071,000 _____

4. 40,400,0<u>4</u>0,000,444 _____

5. Write the number 100,050,000,982 in expanded form using only addition.

_____

6. What is 23,000,400,000,158 in word form?

A Twenty-three million, four hundred thousand, one hundred fifty-eight

B Twenty-three billion, four hundred million, one hundred fifty-eight

C Twenty-three trillion, four hundred million, one hundred fifty-eight

D Two trillion, three billion, four million, one hundred fifty-eight

7. **Algebra** A megabyte holds about 1,000,000 characters of data. A gigabyte holds about 1,000 times more data than a megabyte. About how many characters of data does the gigabyte hold?

A One trillion

B One billion

C One million

D One thousand

8. **Writing to Explain** How are the labels in each period alike? How are they different?

_____

_____

_____

_____

Name _____

Practice
1-2

Comparing and Ordering Whole Numbers

Use < or > to compare.

1. 9,035 ◯ 9,062 **2.** 362,286 ◯ 360,055 **3.** 7,261,005 ◯ 7,266,500

For **4** and **5,** order the numbers from least to greatest.

4. 75,321; 72,369; 72,752; 57,575

_____

5. 6,074,232; 6,234,921; 6,243,219

_____

For **6** and **7,** order from greatest to least.

6. 300 thousand; 300 billion; 3 trillion; 30 million

_____

7. 4,810,414; 4,767,894; 4,562,626; 4,909,000

_____

8. Writing to Explain Tell how you would decide if 9,899,989 is greater than or less than 9,898,998.

_____

_____

9. Number Sense If you plot these numbers on a number line, which one will be in the middle? 105,394; 150,494; 115,054

_____

10. Geometry Which of these figures has the greatest perimeter?

A A square with sides 109 meters long

B A hexagon with sides 65 meters long

C A rectangle with length 24 meters and width 46 meters

D A pentagon with sides 72 meters long

Name _____

Practice
1-3

Exponents and Place Value

Write each expression in exponential form.

1. $5 \times 5 \times 5 \times 5 \times 5 \times 5$ _____

2. $2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2$ _____

3. $3 \times 3 \times 3$ _____

4. 9 _____

Write each number in expanded form using exponents.

5. 53,806 _____

6. 527,519 _____

Evaluate.

7. 6^2 _____ **8.** 5^3 _____ **9.** 3^6 _____ **10.** 2^8 _____

11. Reasoning Zach invested $50 and was able to triple his money in two years. Kayla also began with $50 in investments, and was able to cube her money in two years. Who had more money after two years? Explain.

_____

_____

_____

12. Writing to Explain In 1968, the estimated population of the world was 3,559,028,982 people. When this number is written in expanded form using exponents, one power of 10 would not be represented. Which power of 10? Why?

_____

_____

13. Number Sense Which is NOT equal to 1?

A 10^0

B 4^1

C 1×10^0

D 1×1

Name _____

Practice
2-3

Order of Operations

Evaluate each expression.

1. $3 + 4 \times 7$ _____

2. $88 - 6 \times 6$ _____

3. $8 \times 2 + 7 \times 3$ _____

4. $(5 + 9) + 3 \times 8$ _____

5. $(6 + 3^2) + 5$ _____

6. $9^2 - (7 \times 5) + 3$ _____

7. $48 \div 2 + 6$ _____

8. $26 \div (5 + 8) + 1$ _____

9. $18 + 3 \times (6 \div 2)$ _____

10. Reasoning What operation would you perform *last* in this problem: $(2 \times 3) + (7 \times 2)$? _____

Use parentheses to make each number sentence true.

11. $10 + 5 \times 4^2 \div 2^3 = 20$

12. $124 - 6 \times 0 + 15 = 34$

13. $10^2 - 10 + 3 = 93$

14. $7 + 5 \times 3 \div 3 = 12$

15. Mr. Miller's sixth-grade class went on a field trip to hear the symphony perform. Their seats were grouped in the following ways: 2 groups of 3 seats; 3 groups of 4 seats, 4 groups of 2 seats, and 1 seat (for Mr. Miller). Write a number sentence to calculate how many students went on the field trip.

_____

_____

16. Evaluate the expression $(4^2 - 4) + 6 \div 2$.

A 4 **B** 9 **C** 12 **D** 15

17. Writing to Explain Suppose you had to evaluate $9^2 + 5 \times 4$. Tell the order in which you would compute these numbers.

_____

_____

Name _____

Practice
2-6

Evaluating Expressions

Apply the substitutions and evaluate.

1. $7x - 4; x = 9$ _____

2. $3d + (5 - d); d = 4$ _____

3. $8 + 2g - g \div 2; g = 6$ _____

For **7–10,** evaluate each expression for 2, 6, and 8.

4. $5x$ _____, _____, _____

5. $x + 12$ _____, _____, _____

6. $96 \div x$ _____, _____, _____

7. $x^2 - x$ _____, _____, _____

8. Evaluate the expression for the values of h.

h	6	18	24	42	54
$(h - 6) + h \div 6$					

9. The table shows how much Tia charges for pet sitting. Write an expression to show how much Tia will earn for sitting two dogs for a day and two cats per hour. Then solve for sitting two dogs for the day and one cat for 6 hours.

Number of Pets	Per Day	Per Hour
One dog	$20	$7
Two dogs	$25	$9
One or two cats	$15	$6

10. Writing to Explain Tia wrote $20 + 7x$ to find how much she earned for one pet sitting job and $15x$ for another job. Explain the difference between the expressions.

11. Evaluate the expression $6 + 8f$ for $f = 4$.

A 8

B 18

C 38

D 56

Name _____

Practice
3-3

Adding and Subtracting

Find each sum or difference.

1. 10.21 − 4.6

_____

2. 0.03 + 1.85

_____

3. 5.011 + 1.23

_____

4. 22.9 − 0.61

_____

5. 9.834 − 1.26

_____

6. 24 + 7.45

_____

7. Algebra Complete the sequence of numbers. 4.25, 5, 5.75, _____, _____

8. Number Sense How does the cost for 1 tube of glue compare to the cost for 1 roll of tape?

_____

9. What is the difference in cost between 2 packs of markers and 4 sheets of poster board?

_____

Craft Supplies	
Poster board	$1.29/sheet
Markers	$4.50/pack
Tape	$1.99/roll
Glue	$2.39/tube
Construction paper	$3.79/pack

10. In a long jump competition, Khaila jumped 3.9 meters. Alicia jumped 3.08 meters. How much farther did Khaila jump?

A 0.01 meters

B 0.82 meters

C 0.98 meters

D 1.01 meters

11. Writing to Explain Trey wrote 9.009 − 0.01 = 9.008. Is his answer correct? Why or why not?

_____

_____

Name _____

Practice
3-6

Dividing by a Decimal

Find each quotient.

1. 8.4 ÷ 0.3 = _____

2. 66.15 ÷ 0.63 = _____

3. 10.5 ÷ 1.5 = _____

4. 86 ÷ 0.4 = _____

5. 72.8 ÷ 1.4 = _____

6. 14.36 ÷ 0.4 = _____

7. 2.87 ÷ 0.01 = _____

8. 78.32 ÷ 0.22 = _____

9. Reasoning Why would multiplying both the dividend and the divisor by 10 sometimes make a problem easier to solve?

_____

_____

For each item, find how many times greater the 2002 cost is than the 1960 cost. Round your answer to the nearest hundredth.

Item	1960 Cost	2002 Cost
Movie admission	$0.75	$8.50
Regular popcorn	$0.25	$3.25
Regular drink	$0.35	$2.75

10. movie admission _____

11. regular popcorn _____

12. regular drink _____

13. Which item has increased the greatest amount of times from its original cost? _____

14. Divide. Round to the nearest hundredth. 250.6 ÷ 1.6

A 156

B 156.6

C 156.61

D 156.63

15. Writing to Explain Lynn and Randi got different quotients when they divided 3.60 by 0.12. Whose work is correct? Explain why.

Lynn

$$12\overline{)3.60} \quad 0.30$$

Randi

$$12\overline{)360.} \quad 30.0$$

_____

_____

Name _____

Practice
4-2

Solving Addition and Subtraction Equations

Explain how to get the variable alone in each equation.

1. $n + 10 = 100$
$n + 10 - 10 = 100 - 10$

_____

2. $x - 75 = 49$
$x - 75 + \_\_ = 49 + \_\_$

_____

Solve each equation and check your answer.

3. $g - 8 = 25$

_____

4. $25 + y = 42$

_____

5. $r + 82 = 97$

_____

6. $30 = m - 18$

_____

7. $150 = e + 42$

_____

8. $a - 51 = 12$

_____

9. Jo loaned Al $15. She had $15 left. Solve the equation $15 = s - 15$ to find how much money Jo had before she made the loan.

A $0

B $15

C $30

D $60

10. Critical Thinking If $n + 10 = 40$, then what is the value of the expression $n - 25$?

A 5

B 25

C 30

D 50

11. Writing to Explain Explain how to solve the equation $35 + p = 92$. Then solve.

_____

Name _____

Practice
4-4

Solving Multiplication and Division Equations

For **1** through **3**, explain how to get the variable alone in each equation.

1. $r \times 7 = 42$
$r \times 7 \div 7 = 42 \div 7$

2. $m \div 6 = 12$
$m \div 6 \times \_\_ = 12 \times \_\_$

3. $44 = 2k$

For **4** through **9**, solve the equation. Check your answer.

4. $9n = 72$

5. $y \times 5 = 60$

6. $v \div 13 = 2$

7. $w \div 7 = 15$

8. $216 = 36p$

9. $17 = t \div 3$

10. Writing to Explain Tell how you would get the variable m alone on one side of the equation $15m = 45$.

11. Write a Problem Write a problem that can be solved with the equation $r \div 6 = 14$.

12. Number Sense Which equation can you use to solve this problem?

There are 12 muffins in a package. Will bought 84 muffins. How many packages did he buy?

A $12 \times p = 84$

B $84 \times 12 = p$

C $12 \div p = 84$

D $84 = 12 + p$

Name _____

Practice
7-5

Fractions in Simplest Form

Write each fraction in simplest form.

1. $\frac{8}{16}$ _____ **2.** $\frac{15}{20}$ _____ **3.** $\frac{10}{12}$ _____

4. $\frac{20}{35}$ _____ **5.** $\frac{16}{48}$ _____ **6.** $\frac{45}{100}$ _____

7. $\frac{60}{96}$ _____ **8.** $\frac{72}{75}$ _____ **9.** $\frac{32}{36}$ _____

10. $\frac{8}{28}$ _____ **11.** $\frac{21}{56}$ _____ **12.** $\frac{63}{81}$ _____

13. Number Sense How can you check to see if a fraction is written in simplest form?

_____

_____

14. Writing to Explain What is the GCF and how is it used to find the simplest form of a fraction?

_____

_____

_____

Find the GCF of the numerator and denominator of the fraction.

15. $\frac{8}{26}$ _____ **16.** $\frac{30}{75}$ _____ **17.** $\frac{48}{72}$ _____

Use the GCF to write each fraction in simplest form.

18. $\frac{12}{16}$ _____ **19.** $\frac{12}{20}$ _____ **20.** $\frac{30}{36}$ _____

21. $\frac{35}{56}$ _____ **22.** $\frac{28}{63}$ _____ **23.** $\frac{42}{72}$ _____

24. What is the simplest form of the fraction $\frac{81}{108}$?

A $\frac{28}{36}$

B $\frac{3}{4}$

C $\frac{2}{3}$

D $\frac{4}{5}$

Name _____

Practice
8-4

Decimal Forms of Fractions and Mixed Numbers

Write each fraction or mixed number as a decimal.

1. $\frac{33}{100}$ _____ **2.** $\frac{2}{5}$ _____ **3.** $\frac{1}{6}$ _____

4. $1\frac{3}{16}$ _____ **5.** $4\frac{7}{9}$ _____ **6.** $6\frac{5}{11}$ _____

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

7. 0.08 _____ **8.** 0.24 _____ **9.** 0.325 _____

10. 4.75 _____ **11.** 1.06 _____ **12.** 5.15 _____

13. The label on a cosmetic bottle says 0.04 oz. What is the fraction equivalent for this amount? _____

14. The scale at a deli counter shows 2.54 lb. What is the mixed number equivalent for the number shown? _____

15. Reasoning What is a situation in which you would use fractions to express a number less than one? What is a situation in which decimals seem to work better?

_____

_____

16. Which decimal is equivalent to $4\frac{4}{5}$?

A 4.4

B 4.45

C $4.\overline{5}$

D 4.8

17. Writing to Explain How do you know where to place the bar when a decimal is a repeating decimal?

_____

_____

Name _____

Practice
9-5

Adding Mixed Numbers

Find each sum. Simplify your answer.

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

2. $4\frac{4}{5} + 8\frac{1}{10} =$ _____

3. $1\frac{5}{8} + \frac{15}{16} =$ _____

4. $6\frac{2}{3} + \frac{5}{4} =$ _____

5. $2\frac{7}{8} + 4 =$ _____

6. $7\frac{6}{10} + 1\frac{9}{20} =$ _____

7. $\frac{7}{8} + 3\frac{3}{5} + 2 =$ _____

8. $9 + 3\frac{2}{3} + \frac{5}{6} =$ _____

9. Number Sense Give an example of two mixed numbers whose sum is a whole number.

_____

_____

_____

10. An ostrich egg is $6\frac{4}{5}$ in. long. A California condor's egg is $4\frac{3}{10}$ in. long, and an albatross egg is $5\frac{7}{10}$ in. long. If the three eggs are placed end to end, what is the total length in inches?

_____

11. Shanda can travel 10 mi on her electric scooter before she has to recharge the batteries. If it is $4\frac{5}{8}$ mi to the library and $5\frac{2}{5}$ mi to her friend's house, can she make both trips before she needs to recharge the batteries?

_____

_____

12. Which is the fractional portion of the solution to $5\frac{3}{8} + 2\frac{3}{12}$?

A $\frac{6}{12}$

B $\frac{15}{24}$

C $\frac{6}{8}$

D $\frac{15}{8}$

13. Writing to Explain Explain the steps to adding mixed numbers. What must you do first?

_____

_____

Name _____

Practice
9-6

Subtracting Mixed Numbers

Find each difference. Simplify if possible.

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

2. $1\frac{4}{9} - \frac{8}{9} =$ _____

3. $5\frac{5}{8} - 1\frac{9}{16} =$ _____

4. $12 - 4\frac{5}{6} =$ _____

5. $6\frac{15}{16} - 4 =$ _____

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

7. $9 - 7\frac{5}{8} =$ _____

8. $15\frac{1}{6} - 8\frac{2}{3} =$ _____

9. $6\frac{8}{9} - 1\frac{2}{3} =$ _____

10. $2\frac{3}{7} - 1\frac{5}{14} =$ _____

11. In which of the exercises above do you have to rename the first mixed number to show more fractional parts before subtracting?

_____

The table at the right shows the lengths of various carpentry nails.

Carpentry Nails

Size	Length (inches)
5d	$1\frac{3}{4}$
9d	$2\frac{3}{4}$
12d	$3\frac{1}{4}$
30d	$4\frac{1}{2}$

12. How much longer is a 30d nail than a 5d nail?

_____

13. How much longer is a 12d nail than a 9d nail?

_____

14. To subtract $4\frac{5}{6}$ from $10\frac{1}{3}$, which of the following must the mixed number $10\frac{1}{3}$ first be renamed as?

A $9\frac{2}{3}$

B $9\frac{4}{6}$

C $9\frac{8}{6}$

D $10\frac{2}{6}$

15. Writing to Explain Jack says that once you have a common denominator you are ready to subtract two mixed numbers. What other step might be necessary before you can subtract? Give an example.

_____

_____

Name _____

Practice
10-5

Multiplying Mixed Numbers

Find each product. Simplify if possible.

1. $3\frac{1}{2} \times 1\frac{2}{3}$ _____ **2.** $1\frac{1}{8} \times 2\frac{1}{3}$ _____ **3.** $7 \times 1\frac{1}{4}$ _____

4. $2\frac{1}{6} \times 1\frac{1}{5}$ _____ **5.** $3\frac{1}{6} \times 18$ _____ **6.** $1\frac{1}{8} \times 2\frac{1}{2}$ _____

7. $1\frac{2}{3} \times 2\frac{1}{4}$ _____ **8.** $10 \times 1\frac{1}{3}$ _____ **9.** $2\frac{4}{5} \times 3\frac{1}{3}$ _____

Evaluate each expression for $S = 1\frac{4}{5}$.

10. $2\frac{1}{3}S$ _____ **11.** $3\frac{3}{4}S$ _____ **12.** $5\frac{1}{6}S$ _____

Use the table to answer the questions.

Average Rainfall in Berkeley, California	
January	$3\frac{7}{10}$ in.
April	$1\frac{4}{5}$ in.
October	$1\frac{1}{2}$ in.

13. If Berkeley receives $1\frac{1}{4}$ times its average January rainfall, how much rain will it receive?

_____

14. How much rain will Berkeley receive if it is $2\frac{1}{3}$ times the October average?

_____

15. Which month has about twice the rainfall as April?

_____

16. Jessie stacked photographs of 6 zoo animals on top of each other to create a display. Each photo is $14\frac{1}{4}$ in. high. How high is the display?

A $84\frac{2}{3}$ in.

B $85\frac{1}{2}$ in.

C $86\frac{3}{4}$ in.

D 87 in.

17. Writing to Explain Explain how you would find $2 \times 2\frac{1}{3}$ using the Distributive Property.

_____

_____

Name _____

Practice
10-6

Dividing Mixed Numbers

Find each quotient. Simplify if possible.

1. $1\frac{1}{2} \div 2\frac{1}{3} =$ _____ **2.** $4\frac{1}{4} \div 3\frac{1}{8} =$ _____ **3.** $2\frac{1}{4} \div 5\frac{1}{2} =$ _____

4. $3\frac{1}{2} \div 2\frac{1}{4} =$ _____ **5.** $3\frac{3}{4} \div 2 =$ _____ **6.** $1\frac{1}{2} \div 2\frac{1}{4} =$ _____

7. $8 \div 2\frac{3}{4} =$ _____ **8.** $2\frac{1}{2} \div 1\frac{3}{8} =$ _____ **9.** $4\frac{2}{3} \div 1\frac{3}{4} =$ _____

10. Reasoning Is it possible to divide 15 by a mixed number and get a quotient that is greater than 15? Explain.

_____

_____

Room	Gallons of Paint
Kitchen	$2\frac{1}{2}$
Bedroom	$3\frac{3}{4}$
Living room	$4\frac{1}{3}$

Max is painting the inside of an apartment complex. The table shows how many gallons of paint are needed to paint each type of room.

11. How many kitchens can Max paint with 20 gal? _____

12. How many living rooms can Max paint with 26 gal? _____

13. How many bedrooms can Max paint with 60 gal? _____

14. Find $4\frac{1}{2} \div 2\frac{1}{4}$.

A 1

B 2

C 3

D 4

15. Writing to Explain Explain how you would find $4\frac{1}{5} \div 2\frac{1}{3}$.

_____

_____

_____