

Spiraling Through Fractions and Percents

SKILL	SKILL SEQUENCE	APPEARS IN THESE SPIRALS
1	Greatest Common Factor	1, 2, 3, 4, 8, 20
2	Lowest Terms	1, 2, 3, 4, 5, 6, 8, 21
3	Equivalent Fractions	2, 3, 4, 5, 6, 7, 8, 22
4	Comparing Fractions	3, 4, 5, 6, 7, 8, 20
5	Mixed Numbers	6, 7, 8, 9, 10, 21
6	Improper Fractions	7, 8, 9, 10, 11, 22
7	Addition of Like Fractions and Mixed Numbers	9, 10, 11, 12, 13, 20
8	Subtraction of Like Fractions and Mixed Numbers	10, 11, 12, 13, 14, 21
9	Addition of Unlike Fractions and Mixed Numbers	11, 12, 13, 14, 15, 22, 40
10	Subtraction of Unlike Fractions and Mixed Numbers	12, 13, 14, 15, 16, 20, 40
11	Multiplication of Fractions	14, 15, 16, 17, 19, 21, 29
12	Multiplication of Fractions and Whole Numbers	15, 16, 17, 18, 19, 22, 28, 39, 40
13	Division of Fractions	16, 17, 18, 19, 20, 29
14	Division of Fractions and Whole Numbers	17, 18, 19, 22, 23, 39
15	Division of Mixed Numbers	18, 19, 21, 23, 24, 28, 40
16	Changing Fractions to Percents	23, 24, 25, 27, 29, 39
17	Changing Percents to Fractions	24, 25, 26, 27, 29, 38, 39
18	Changing Mixed Numbers to Percents	25, 26, 27, 28, 30, 37, 39
19	Changing Percents to Mixed Numbers	26, 27, 28, 30, 31, 36, 38
20	Finding a Percent of a Number	30, 31, 32, 35, 36, 37
21	Discount and Sales Price	31, 32, 33, 35, 36, 38
22	Simple Interest	32, 33, 34, 35, 36, 37
23	Percent Increase	33, 34, 35, 36, 38, 40
24	Percent Decrease	34, 35, 36, 37, 39, 40

SCORING

Communicate About Math

Each spiral concludes with an open-ended question designed to develop students' abilities to communicate about mathematical processes. The main objective of this question is to provide students with opportunities to draw upon problem-solving strategies, to map out a mathematical process, and to communicate that information in written form. Consistent with recent N.C.T.M. standards, this question should not be assessed solely on calculating a *correct* answer. The process used and the student's ability to communicate about the process are equally important. Therefore, the following rubric could be used to assess all ***Communicate About Math*** questions.

- 4 Process described is based upon sound mathematical principles.
 - Essay clearly defines each step of a carefully structured process.
 - Final computation is correct.
- 3 Process described is somewhat inefficient, yet demonstrates an understanding of mathematical principles.
 - Essay defines each step of the process. However, the steps are not presented in sequential order.
 - Final computation is correct.
- 2 Process described deviates from sound mathematical principles.
 - Gaps exist in the essay to the degree that it would be difficult to duplicate the process.
 - Final computation is incorrect.
- 1 Process described lacks mathematical foundation.
 - Essay is vague and unclear.
 - Final computation is incorrect.

Spiraling Through Fractions and Percents

Name _____

Date _____

SPIRAL 1

Find the GCF for each set of numbers.

1. 8, 12 _____

2. 14, 42 _____

3. 36, 54 _____

4. 15, 33 _____

5. 72, 96 _____

6. 27, 81 _____

7. 32, 60, 76 _____

8. 40, 96, 120 _____

9. 150, 300, 375 _____

Write the fraction in lowest terms.

10. $\frac{7}{21}$ _____

11. $\frac{6}{40}$ _____

12. $\frac{27}{45}$ _____

13. $\frac{24}{56}$ _____

14. $\frac{13}{52}$ _____

15. $\frac{30}{55}$ _____

16. $\frac{14}{84}$ _____

17. $\frac{50}{125}$ _____

Write the missing number.

18. $\frac{?}{14} = \frac{81}{126}$ _____

19. $\frac{195}{90} = \frac{13}{?}$ _____

PROBLEM SOLVING

20. Carla is packaging items to sell at the school store. She has 36 pens and 54 pencils. All packages have to contain the same number of pens and the same number of pencils. What is the greatest number of packages she can make without any items left over? How many pens and how many pencils will be in each package?
- _____

Communicate About Math

Zack wants to express $\frac{12}{40}$ in lowest terms. Write an essay that describes a process he can use.

SPIRAL  **16**

Subtract. Write the answer in lowest terms.

1. $8\frac{2}{5} - 4\frac{9}{10}$ _____ 2. $9\frac{1}{4} - 3\frac{1}{2}$ _____ 3. $7\frac{5}{6} - 1\frac{7}{8}$ _____

Find the product. Write the answer in lowest terms.

4. $\frac{3}{5} \times \frac{15}{18}$ _____ 5. $\frac{4}{5} \times \frac{7}{20}$ _____ 6. $\frac{1}{2} \times \frac{8}{9}$ _____

Multiply. Write the answer in lowest terms.

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

10. $5\frac{1}{6} \times 2\frac{1}{4}$ _____ 11. $8 \times 3\frac{3}{8}$ _____

Write the quotient in lowest terms.

12. $\frac{3}{4} \div \frac{1}{2}$ _____ 13. $\frac{5}{8} \div \frac{1}{4}$ _____ 14. $\frac{2}{3} \div \frac{1}{6}$ _____ 15. $\frac{7}{8} \div \frac{1}{3}$ _____

16. $\frac{7}{10} \div \frac{1}{5}$ _____ 17. $\frac{7}{9} \div \frac{1}{3}$ _____ 18. $\frac{5}{6} \div \frac{2}{3}$ _____ 19. $\frac{9}{10} \div \frac{4}{5}$ _____

PROBLEM SOLVING

20. Sally has $5\frac{1}{2}$ pounds of nuts. She wants to place them in $\frac{1}{4}$ pound bags. How many bags does she need?

C *Communicate About Math*

The distance around the park is $\frac{3}{4}$ mile. Hal wants to jog $4\frac{1}{2}$ miles. How can he determine the number of times he should run around the park? Write an essay describing a process Hal can use.

SPIRAL  26

Write the percent as a fraction in lowest terms.

1. 26% _____ 2. 84% _____ 3. 2% _____

4. 18% _____ 5. 75% _____

Write each mixed number as a percent.

6. $4\frac{3}{4}$ _____ 7. $9\frac{13}{20}$ _____ 8. $5\frac{17}{50}$ _____

9. $2\frac{3}{100}$ _____ 10. $8\frac{1}{50}$ _____

Write each percent as a mixed number in lowest terms.

11. 124% _____ 12. 302% _____ 13. 715% _____

14. 106% _____ 15. 913% _____ 16. 608% _____

17. 244% _____ 18. 575% _____ 19. 109% _____

PROBLEM SOLVING

20. The number of Main High students who ride buses to school has increased 125% in the past three years. What mixed number represents this increase?
- _____

C *Communicate About Math*

Think about the process you would use to express 330% as a mixed number. Write an essay describing your process.

SPIRAL  36

Write each percent as a mixed number in lowest terms.

1. 425% _____ 2. 318% _____ 3. 565% _____

Find the percent of the number.

4. 12% of 240 _____ 5. 80% of 56 _____ 6. 35% of 300 _____

Find the sales price.

7. Price: \$125 8. Price: \$24 9. Price: \$250
Discount: 40% _____ Discount: 15% _____ Discount: 20% _____

Find the interest for 1 year. The annual rate is given.

10. Principal: \$425 11. Principal: \$2,800 12. Principal: \$500
Rate: 10% _____ Rate: 6% _____ Rate: 8% _____

Find the percent of increase.

13. \$20 to \$35 14. \$72 to \$144 15. \$5 to \$50 16. \$18 to \$27
_____ _____ _____ _____

Find the percent of decrease.

17. \$175 to \$25 _____ 18. \$360 to \$90 _____ 19. \$300 to \$60 _____

PROBLEM SOLVING

20. Sue paid \$21 for one share of stock. One year later, a share of the stock sold for \$35. What was the percent of increase in the stock's price?

C *Communicate About Math*

Loretta put \$800 in a savings account for two years. The account received 5% simple interest each year. Describe a process you would use to find how much the account was worth at the end of the two years.