Reteaching 4-9 Fractions and Decimals

```
0   0.1  0.2  0.3  0.4  0.5  0.6  0.7  0.8  0.9  1.0  1.1  1.2  1.3  1.4
```

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

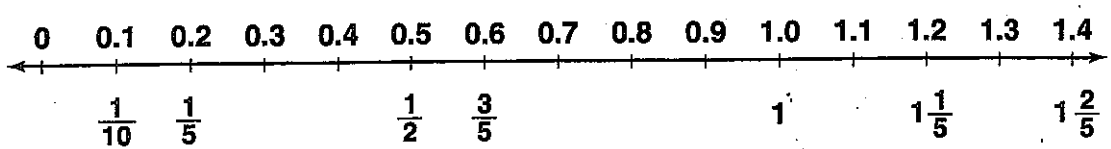| To change a fraction to a decimal, divide the numerator by the denominator.	To change a decimal to a fraction:

To change a fraction to a decimal, divide the numerator by the denominator.

$\frac{3}{5}$ Think: $3 \div 5$

$$\begin{array}{r} 0.6 \\ 5\overline{)3.0} \\ -30 \\ \hline 0 \end{array}$$

$\frac{3}{5} = 0.6$

To change a decimal to a fraction:

① Read the decimal to find the denominator. Write the decimal digits over 10, 100, or 1,000.

0.65 is 65 *hundredths* → $\frac{65}{100}$

② Use the GCF to write the fraction in simplest form.

The GCF of 65 and 100 is 5.

$$\frac{65}{100} = \frac{65 \div 5}{100 \div 5} = \frac{13}{20}$$

Divide to write each fraction as a decimal.

1. $\frac{4}{5} =$ _____

2. $\frac{3}{4} =$ _____

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

4. $\frac{1}{4} =$ _____

5. $\frac{2}{5} =$ _____

6. $\frac{7}{10} =$ _____

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

8. $\frac{1}{5} =$ _____

9. $\frac{3}{8} =$ _____

Write each decimal as a fraction in simplest form.

10. $0.4 =$ _____

11. $0.75 =$ _____

12. $1.5 =$ _____

13. $0.35 =$ _____

14. $2.7 =$ _____

15. $1.8 =$ _____

16. $0.625 =$ _____

17. $0.78 =$ _____

18. $0.88 =$ _____

Choose A, B, or C. Find the equivalent fraction or decimal.

19. 0.95   A. $\frac{45}{50}$ B. $\frac{19}{20}$ C. $\frac{9}{10}$

20. $\frac{21}{25}$ A. 0.21   B. 0.42   C. 0.84

21. 0.76   A. $\frac{19}{25}$ B. $\frac{3}{4}$ C. $\frac{76}{10}$

22. $\frac{19}{50}$ A. 0.38   B. 0.038   C. 3.8

Name_____ Date_____

Write the decimal as a fraction.

1. 0.26

2. 0.79

3. 0.571

4. 0.846

Write the fraction as a decimal.

5. $\dfrac{3}{8}$

6. $\dfrac{4}{10}$

7. $\dfrac{11}{16}$

8. $\dfrac{17}{20}$

9. A quarterback completed 0.6 of his passes during a game. Write the decimal as a fraction.

1-34 Using Scientific Notation

Scientific notation is used to express very large numbers. Most large numbers are not written in words or digits because they are simply "too big." Scientific notation is used instead.

Here are some tips for writing scientific notation:

- The first factor is greater than or equal to one and is less than ten.
- The second factor is a power of 10 and is written in exponential form.
- To write numbers with exponents, count the number of places to the right of the first non-zero number. This number is the exponent.

Directions: Write each of the following numbers in scientific notation. The first problem is done for you.

1. Our sun has a diameter of 864,000 miles. _____ 8.64×10^5 _____

2. The temperature of the sun's surface is about 11,000° F. _____ Its inner core may reach temperatures of 35 million degrees. _____

3. The largest planet of our solar system is Jupiter. Its diameter is about 89,000 miles. _____

4. The smallest planet of our solar system is Pluto with a diameter of about 1,400 miles. _____

5. The diameter of the Earth is about 8,000 miles. _____

6. Mercury is the planet closest to the sun. It is about 36 million miles from the sun. _____

7. Mercury is also the fastest moving planet at a speed of 107,000 miles per hour.

_____

8. The slowest moving planet is Pluto at about 10,600 miles per hour.

_____

9. The moon, Earth's natural satellite, is about 238,900 miles from the Earth. _____ The moon has a diameter of about 2,160 miles.

_____

10. Asteroids, or minor planets, are solid chunks of rock that may be very small or quite large. Ceres, the largest asteroid, is about 600 miles across.

_____

11. A galaxy is a group of billions of stars held together by gravity. There are about 50 billion galaxies in the universe. _____

12. We live in a galaxy called the Milky Way, which contains about 200 billion stars.

_____

1-35 Converting Scientific Notation to Standard Form

To get an idea of how useful scientific notation is for writing large numbers, rewrite the numbers expressed in scientific notation in standard form.

1. 1.7×10^5 = _____

2. 6.0×10^4 = _____

3. 3.5×10^8 = _____

4. 7.34×10^6 = _____

5. 8.7×10^{12} = _____

6. 9.45×10^3 = _____

7. 6.8×10^{10} = _____

8. 4.58×10^5 = _____

9. 6.217×10^8 = _____

10. 5.704×10^9 = _____

11. 2.04×10^7 = _____

12. 7.0×10^1 = _____

Write three problems of your own in which numbers expressed in scientific notation must be rewritten in standard form. Be sure to have an answer key. Share your problems with a friend.

_____

_____

_____

What Does The Fairy Queen Like Best About Her Job?

Do each exercise and find your answer in the set of answers to the right. Write the letter of the answer in the box containing the number of the exercise.

Give the missing exponent or factor.

1. $3,800 = 3.8 \times 10^{\square}$

2. $160,000 = 1.6 \times 10^{\square}$

3. $70,000,000 = 7 \times 10^{\square}$

4. $4,920,000 = 4.92 \times 10^{\square}$

5. $63,000 = \square \times 10^4$

6. $5,081,000 = \square \times 10^6$

7. $900,000 = \square \times 10^5$

8. $274,000,000 = \square \times 10^8$

Answers 1 – 8:

+++++++++++++++++++++++

- (T) 50.81
- (N) 5.081
- (C) 6
- (F) 8
- (I) 630
- (A) 2.74
- (S) 3
- (E) 7
- (H) 5
- (H) 9
- (A) 6.3
- (U) 0.274

Write the number in scientific notation.

9. 47,000

10. 4,700,000

11. 516,000,000

12. 516,000

13. 3,000,000

14. 30,000,000

15. 805,000

16. 8,050

17. Light travels at a speed of 186,000 miles per second.

Answers 9 – 17:

+++++++++++++++++++++++

- (K) 1.86×10^4
- (Y) 3×10^6
- (I) 8.05×10^3
- (A) 5.16×10^8
- (F) 8.05×10^4
- (R) 4.7×10^8
- (T) 3×10^7
- (N) 1.86×10^5
- (E) 3×10^9
- (V) 4.7×10^4
- (T) 5.16×10^6
- (H) 8.05×10^5
- (L) 80.5×10^3
- (E) 4.7×10^6
- (N) 5.16×10^5

Write the number in standard form.

18. 9.8×10^5

19. 9.8×10^3

20. 1.72×10^4

21. 1.72×10^7

22. 5×10^9

23. 5×10^6

24. 7.066×10^5

25. 7.066×10^8

26. The estimated temperature at the sun's core is 2.5×10^7 degrees Fahrenheit.

Answers 18 – 26:

+++++++++++++++++++++++

- (H) 17,200
- (N) 706,600
- (W) 5,000,000,000
- (R) 50,000,000
- (T) 98,000
- (G) 980,000
- (F) 70,660
- (A) 5,000,000
- (O) 1,720,000
- (S) 9,800
- (L) 70,660,000
- (D) 706,600,000
- (E) 17,200,000
- (N) 706,600
- (P) 2,500,000

26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

SKILL 17: Practice

Write a decimal and a fraction in simplest form for each picture.

1.

2.

3.
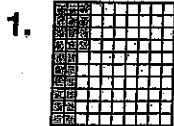
Write a fraction in simplest form for each decimal.

4. 0.34 _____

5. 0.9 _____

6. 0.64 _____

7. 0.12 _____

8. 0.72 _____

9. 0.65 _____

10. 0.4 _____

11. 0.27 _____

12. 0.32 _____

Write a decimal for each fraction.

13. $\frac{2}{5}$ _____

14. $\frac{1}{2}$ _____

15. $\frac{9}{20}$ _____

16. $\frac{12}{25}$ _____

17. $\frac{3}{4}$ _____

18. $\frac{42}{50}$ _____

19. $\frac{11}{20}$ _____

20. $\frac{7}{25}$ _____
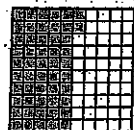
21. $\frac{16}{25}$ _____

Solve.

22. A thumb tack is about 0.85 cm long. Write the length of the thumbtack as a fraction in simplest form. _____

23. Jason has a drill bit that is $\frac{21}{25}$ cm in diameter. Write the diameter of the drill bit as a decimal. _____

24. Tonya's caulking gun handle is 0.98 ft long. Write the length of the handle as a fraction in simplest form. _____

TEST PREP

25. What decimal is shown?

    Skill 17

    A 0.52   C 0.13
    B 0.25   D 1.3

26. Which set of fractions is in order from least to greatest?

    Skill 16

    F $\frac{2}{3}, \frac{3}{5}, \frac{7}{10}$ H $\frac{2}{5}, \frac{3}{7}, \frac{1}{2}$

    G $\frac{8}{9}, \frac{2}{3}, \frac{1}{6}$ J $\frac{5}{8}, \frac{1}{4}, \frac{3}{7}$

Section C: Fractions, Mixed Numbers, and Decimals

SKILL 18: Dividing to Change a Fraction to a Decimal

To change a fraction to a decimal, divide the numerator by the denominator.

Example 1

Write $\frac{2}{5}$ as a decimal.

To write $\frac{2}{5}$ as a decimal, divide 2 by 5.

The fraction $\frac{2}{5}$ and the decimal 0.4 name the same number.

```
     0.4
5)2.0
   -20
     0 ← The remainder in the
        tenths place is zero.
```

We call 0.4 a **terminating decimal** because it terminates, or ends.

Example 2

Write $\frac{2}{9}$ as a decimal.

To write $\frac{2}{9}$ as a decimal, divide 2 by 9.

The fraction $\frac{2}{9}$ and the decimal 0.222... name the same number.

```
      0.222...
9)2.000
   -18
     20
    -18
     20
    -18
      2 ← If you keep dividing you always
         get a nonzero remainder.
```

The repeating digit can be shown with a bar as $0.\overline{2}$.

We call this type of decimal a **repeating decimal** because a pattern of digits repeats.

Example 3

Write 0.12333... using the bar notation.

Only the digit that repeats is shown with a bar, so 0.12333... is equal to $0.12\overline{3}$.

Guided Practice

1. Rewrite 0.333... using bar notation. _____

2. Rewrite $0.\overline{27}$ using the three dots. _____

Convert each fraction to a decimal by dividing. Tell if it is terminating or repeating.

3. $\frac{3}{8}$ _____   4. $\frac{7}{9}$ _____

SKILL 18: Practice

Rewrite using bar notation.

1. 0.77777... _____   2. 0.585858... _____   3. 2.656565... _____

4. 7.20222... _____   5. 4.933333... _____   6. 3.001001001... _____

Rewrite using the three dots.

7. $0.\overline{25}$ _____   8. $0.\overline{6}$ _____   9. $2.0\overline{4}$ _____

10. $3.0\overline{27}$ _____   11. $4.7\overline{1}$ _____   12. 9.003 _____

Write each fraction as a decimal. Tell whether it is terminating or repeating.

13. $\frac{2}{3}$ _____   14. $\frac{7}{10}$ _____

15. $\frac{15}{6}$ _____   16. $\frac{23}{33}$ _____

17. $\frac{1}{8}$ _____   18. $\frac{6}{11}$ _____

19. $\frac{5}{6}$ _____   20. $\frac{21}{40}$ _____

21. $\frac{49}{50}$ _____   22. $\frac{14}{9}$ _____

Solve.

23. A computer word processing program allows users to select a font size of 8 point, 10 point, 12 point, or 16 point.

These sizes are equivalent to $\frac{1}{9}$ in., $\frac{5}{36}$ in., $\frac{1}{6}$ in., and $\frac{2}{9}$ in., respectively.

Write each font size as a decimal.

TEST PREP

24. Which shows $\frac{4}{9}$ as a decimal?   *Skill 18*

A 0.4   C 0.44

B $0.\overline{4}$ D $0.0\overline{4}$

25. What is the simplest form of the fraction shown by the picture?   *Skill 17*

F $\frac{95}{100}$ H $\frac{9}{10}$

G $\frac{19}{20}$ J $\frac{1}{20}$