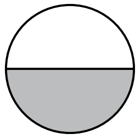
Name ______________________________

• Fractions, Decimals, and Percents

- A part of a whole can have different names.
  $\frac{1}{2}$ of the circle is shaded.
  0.5 of the circle is shaded.
  50% of the circle is shaded.



- Any fractional part can be written as a fraction, a decimal, or a percent.

Practice:

Use fraction pieces to help you answer the following questions. Remember to write the percent symbol if necessary.

1. $\frac{1}{2}$ is equal to **A** 40% **B** 5% **C** 50% ______

2. Write the decimal number for 50%. ______

3. $\frac{2}{5}$ is equal to **A** 20% **B** 25% **C** 40% ______

4. Write the decimal number for $\frac{2}{5}$. ______

5. $\frac{1}{3}$ is equal to **A** 13% **B** $33\frac{1}{3}$% **C** 66% ______

6. Write the decimal number for $\frac{3}{4}$. ______

Compare.

7. 0.215 ◯ 0.210

8. 0.54 ◯ 0.540

9. 34% ◯ 67%

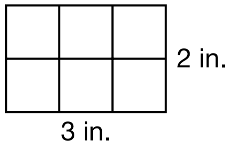
10. 12.5% ◯ 125%

Name ______________________________

• Area, Part 1

- Area of a rectangle = length × width
- "Cover" is a keyword for "area".
- Label **square units**. The abbreviation for "square" is "sq".

Example:



Area = 3 in. × 2 in. = 6 sq. in.

- To estimate the area of a rectangle, round the length and width before multiplying.

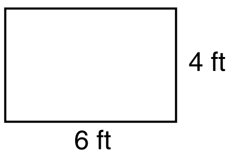
Example:

13 ft 7 in.	→	1 4 ft
12 ft 2 in.	→	× 1 2 ft
		1 6 8 sq. ft

Practice:

What is the area of each rectangle? Remember to write the units.

1.



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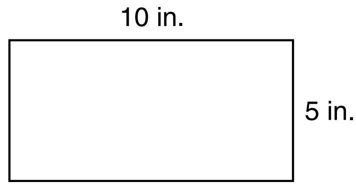
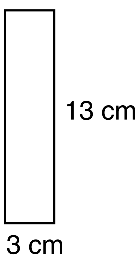
2.



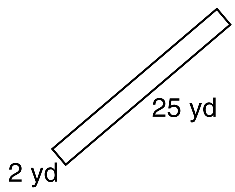
____

3.



____

4.



____

5. Marta's kitchen is 11 feet wide and 14 feet long. What is the area of the room?

____

6. Estimate the area of your desktop. Measure the length and width of your desktop to the nearest inch before calculating the area. __________

• Adding and Subtracting Decimal Numbers

- Line up the decimal points.
- If an addend has fewer decimal places than another, use zeros as placeholders.

Example:

```
   1
   1.56
 + 6.52
 ------
   8.08
```

Practice:

Add.

1.
```
   3.6
   4.7
 + 1.4
 -----
```

2.
```
   5.18
   8.21
 + 7.72
 ------
```

3.
```
   10.08
    4.13
 + 12.95
 -------
```

Line up the decimal points and solve. Show your work.

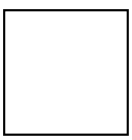
4. 2.547 + 3.602 + 11.854

+ __________

5. 15.894 + 0.063 + 1.34

+ __________

6. Find the perimeter of this square. Remember to write the units.



1.64 cm

____

7. The distance from Tranor Elementary to Potomac Middle School is 3.27 miles. How far is it to walk from one school to the other, and then back again?

____

Name ______________________________

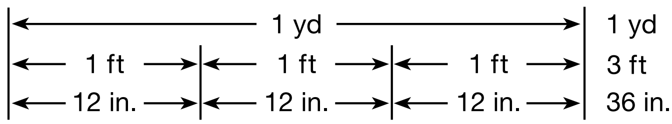
• Units of Length

- Use the table below to help convert units of length.

Equivalent Measures

U.S. Customary System	**Metric System**
12 in. = 1 ft	10 mm = 1 cm
3 ft = 1 yd	1000 mm = 1 m
5280 ft = 1 mi	100 cm = 1 m
1760 yd = 1 mi	1000 m = 1 km
A meter is about 3 inches longer than a yard.	

- Below is a $\frac{1}{12}$ scale of a yard to show the relationships.



Example: Three yards is how many inches?

yd / in. $\frac{3}{?} = \frac{1}{36}$ $\quad 36 \times 3 = 108$ Three yards equals 108 inches.

Practice:

Remember to write the units.

1. How many feet is $\frac{1}{4}$ of a mile? $\frac{1}{4}$ of 5280 = ________
2. 60 kilometers is how many meters? ________ km / m $\frac{60}{?} = \frac{1}{1000}$
3. Two yards is how many inches? ________
4. One hundred centimeters is how many millimeters? ________

• Changing Improper Fractions to Whole or Mixed Numbers

Less than 1	Equal to 1	Greater than 1
$\frac{3}{4}$	$\frac{4}{4}$	$\frac{5}{4}$
Proper fraction	Improper fractions	

- Any **improper fraction** is equal to or greater than 1.
- To convert an improper fraction, divide the denominator (bottom number) into the numerator (top number) and write the remainder as a fraction.

Example: $\frac{10}{4} \longrightarrow 4\overline{)10}$ = $2\frac{2}{4}$

- If necessary, add the mixed number to the whole number.

Example: $5\frac{6}{5} \longrightarrow 5\overline{)6}$ = $1\frac{1}{5}$

$$5 + 1\frac{1}{5} = 6\frac{1}{5}$$

- It helps to think of improper fractions as "top heavy" fractions.

Practice:

Convert each improper fraction. Use fraction pieces for help.

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

4. $\frac{9}{4}$ = ________ **5.** $\frac{5}{4}$ = ________ **6.** $\frac{7}{3}$ = ________

7. $\frac{10}{8}$ = ________ **8.** $\frac{5}{1}$ = ________

Add. Simplify each answer.

9. $\frac{5}{7} + \frac{5}{7}$ = ______________ **10.** $\frac{3}{4} + \frac{3}{4}$ = ______________

11. $\frac{4}{5} + \frac{6}{5}$ = ______________ **12.** $\frac{6}{9} + \frac{8}{9}$ = ______________

Name ______________________________

• Multiplying Fractions

- To multiply fractions, multiply across, then simplify.

  Example: $\frac{3}{4} \times \frac{4}{6} = \frac{3 \times 4}{4 \times 6} = \frac{12}{24} = \frac{1}{2}$

- "Of" is a keyword for multiplication.

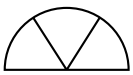
  Example: What is one half of five sixths?

  one half → $\frac{1}{2}$; of → $\times$; five sixths → $\frac{5}{6}$

  $\frac{1}{2} \times \frac{5}{6} = \frac{5}{12}$

Practice:

1. A semicircle is one half of a circle. Shade one third of the semicircle below. The shaded part of the semicircle shows that $\frac{1}{3}$ of $\frac{1}{2}$ is what fraction of a whole circle?

 ________

2. A quarter is what fraction of a dollar? ________

A penny is what fraction of a quarter? ________

A nickel is what fraction of a quarter? ________

3. What fraction is two thirds of one fourth? ________

4. What fraction is three fifths of four sevenths? ________

5. $\frac{1}{4} \times \frac{3}{4} =$ ________ **6.** $\frac{6}{7} \times \frac{3}{5} =$ ________ **7.** $\frac{9}{10} \times \frac{1}{3} =$ ________

• Converting Units of Weight and Mass

- We can use **equivalent measures** to convert one unit measure to another within the same measurement system.
- Convert mixed measures to the same measure before performing arithmetic in word problems.
- Use the table below to help convert units of weight and mass.

Equivalent Measures

U.S. Customary System	Metric System
16 ounces = 1 pound 2000 pounds = 1 ton	1000 milligrams = 1 gram 1000 grams = 1 kilogram 1000 kilograms = 1 ton
On Earth, a kilogram weighs a little more than 2 pounds, and a metric ton is about 2200 pounds.	

Practice:

1. One fourth of a ton is how many pounds? ________

2. If a pair of earrings weighs about 20 grams, then one earring is about how many milligrams?

____

3. A fifteen pound barbell weighs how many ounces? ________

4. A forty-two ton load is how many pounds? ________

5. At birth Jaime weighed 7 pounds. How many ounces did

Jaime weigh? ________

• Exponents and Square Roots

- An exponent, sometimes called the **"power"** of a number, shows how many times the **base** (the number) is multiplied by itself.

  Example: Read the exponent in these "base 5" numbers.

  $5^2 = 5 \times 5 = 25$ "five squared equals 25"
  $5^3 = 5 \times 5 \times 5 = 125$ "five cubed equals 125"

- Our money system uses a base-ten system. That means the base is 10, and the place value can be expressed as an exponent.

  Example: Use exponents to write the number of dollar bills in $10,000.

  $10{,}000 = 10 \times 10 \times 10 \times 10 = 10^4$

- Powers of ten can be used to show place value when writing numbers in expanded notation.

  Example: Write 4,500,000 in expanded notation using powers of ten.

  $4{,}500{,}000 = (4 \times 1{,}000{,}000) + (5 \times 100{,}000) = (4 \times 10^6) + (5 \times 10^5)$

- A **square root** is one of only two equal factors of a number. For example, $\sqrt{25} = 5$, because $5 \times 5 = 25$. A **perfect square** is the product when a whole number is multiplied by itself. Perfect squares include:

  1, 4, 9, 16, 25, 36, 49, 64, 81, and 100

Practice:

Write each power as a whole number. Show your work.

1. $10^5 =$ ________ **2.** $6^2 =$ ________ **3.** $2^4 =$ ________

4. $8^2 =$ ________ **5.** $5^4 =$ ________ **6.** $3^3 =$ ________

Write each number using words.

7. 5^2 ______________________

8. 4^3 ______________________

Find each square root.

9. $\sqrt{9} =$ ________ **10.** $\sqrt{36} =$ ________ **11.** $\sqrt{64} =$ ________

Compare.

12. $\sqrt{100}$ ◯ 50

Name ______________________________

• Finding Equivalent Fractions by Multiplying by 1

- When a number is multiplied by 1, the value of the number does not change. This is called the **Identity Property of Multiplication**.
- When a fraction is multiplied by any fraction name for 1, the result is an **equivalent fraction**.

Examples:

$\frac{3}{4} \times \frac{2}{2} = \frac{6}{8}$ $\quad \frac{2}{3} \times \frac{4}{4} = \frac{8}{12}$ $\quad \frac{3}{4} \times \frac{25}{25} = \frac{75}{100} = 75\%$

Practice:

Find the fraction name for 1 used to make each equivalent fraction.

1. $\frac{4}{5} \times \frac{}{} = \frac{12}{15}$

2. $\frac{1}{3} \times \frac{}{} = \frac{3}{9}$

3. $\frac{5}{7} \times \frac{}{} = \frac{35}{49}$

4. $\frac{3}{4} \times \frac{}{} = \frac{18}{24}$

Find the numerator that completes each equivalent fraction.

5. $\frac{1}{5} \times \frac{}{} = \frac{}{30}$

6. $\frac{3}{8} \times \frac{}{} = \frac{}{24}$

7. $\frac{2}{7} \times \frac{}{} = \frac{}{28}$

8. $\frac{1}{4} \times \frac{}{} = \frac{}{16}$

9. Write a fraction equal to $\frac{2}{3}$ that has a denominator of 12: $\frac{2}{3} \times \frac{}{} = \frac{}{12}$

10. Write a fraction equal to $\frac{1}{2}$ that has a denominator of 12: $\frac{1}{2} \times \frac{}{} = \frac{}{12}$

11. What is the sum of the answers in questions 9 and 10? __________

Name ______________________________

• Prime and Composite Numbers

- A **prime** number has exactly two factors.
- A **composite** number has more than two factors.
- The number 1 has exactly one factor, and is neither prime nor composite.

Number	Factors	Type
1	1	
2	**1, 2**	**prime**
3	**1, 3**	**prime**
4	1, 2, 4	composite
5	**1, 5**	**prime**

Number	Factors	Type
6	1, 2, 3, 6	composite
7	**1, 7**	**prime**
8	1, 2, 4, 8	composite
9	1, 3, 9	composite
10	1, 2, 5, 10	composite

- An **array** is a rectangular arrangement of numbers or objects in rows and columns.
- Below are 3 different arrays for the number 12.

```
XXXX
XXXX
XXXX
3 by 4

XXXXXX
XXXXXX
2 by 6

XXXXXXXXXXXX
1 by 12
```

Practice:

1. Four prime numbers are 11, 13, 17, and 19. What are the next four prime numbers?

________, ________, ________, ________

2. List all the factors of 24. ________, ________, ________, ________,

________, ________, ________, ________

3. Is the number 24 prime or composite? ______________________________

Why? ______________________________

4. Which counting number is neither prime nor composite? ________

5. Draw three arrays of Xs for the composite number 18. Use different factor pairs for each array.