

Read

Geometry Terms

Examples of ideas from geometry can be found everywhere in everyday life.

A **point** is an exact location in space.

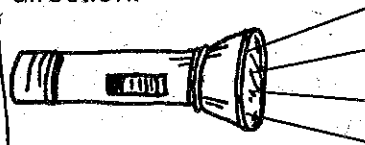


The tip of an ice cream cone is an example of a point.

Geometry

A
point A

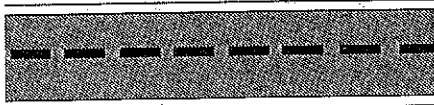
A **ray** is part of a line. It starts from one point and goes forever in the other direction.



Geometry

A B
ray AB
or \overrightarrow{AB}

A **line** is a continuous set of points going in both directions. A straight road is an example of a line.



Geometry

A B
line AB
or \overleftrightarrow{AB}

A flashlight beam is an example of a ray.

An **angle** is two rays from a common point.

Geometry



The two sides of a roof suggest an angle.

A
angle A or $\angle A$

A **line segment** is part of a line. An edge of a box is an example of a line segment.



A B
line segment AB
or \overline{AB}

The common endpoint is called the **vertex**. The rays are the **sides**.

B
A C
 $\angle BAC$ or $\angle CAB$

vertex sides

Point, line or line segment?

one is ~~neither~~ neither

1. a window frame

2. where two streets meet

3. a view of an ocean

4. edge of a book

Ray, angle or neither?

5. beam of a flashlight

6. an open pair of scissors


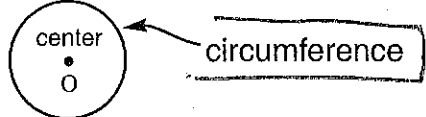
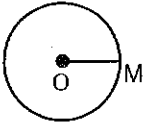
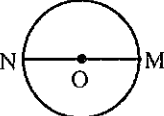
7. cooked spaghetti

8. view from a telescope

Read

Parts of a Circle: Center, Radius, Diameter, and Circumference

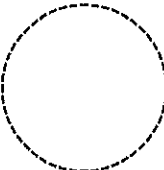
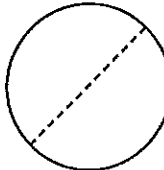
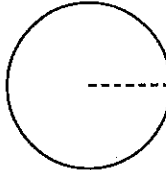
A bicycle wheel is an example of a circle and parts of a circle.

<p>Everyday life</p>  <p>Bike wheel</p>	<p>Geometry</p> <p>A circle is a set of continuous points equally distant from a point called the center. The distance around the outside of a circle is called the circumference.</p> 
<p>A radius is any line segment from the center to the circumference.</p>  <p>\overline{OM} is a radius of the circle.</p>	<p>A diameter is a line segment passing through the center with two endpoints on the circumference.</p>  <p>\overline{NOM} is a diameter of the circle.</p>

Center, radius, diameter or circumference?

- | | |
|------------------------------------|--|
| 1. rim of a basketball hoop _____ | 2. spoke of a wheel _____ |
| 3. scored line on an aspirin _____ | 4. path of a propeller _____ |
| 5. minute hand of a clock _____ | 6. rim of a circular wastebasket _____ |

What part of each circle is represented by the dotted line?

- | | | |
|--|--|--|
| 7.  _____ | 8.  _____ | 9.  _____ |
|--|--|--|

- | | |
|--|--|
| 10. Describe how a circle and a line segment are alike and how they are different.

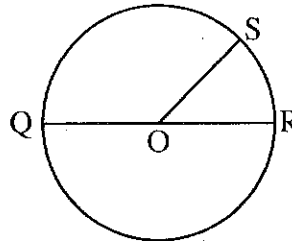
_____ | 11. Describe how a radius and a diameter are alike and how they are different.

_____ |
|--|--|

12. If $\overline{QO} = 4$ cm, then $\overline{QR} =$ _____.

13. If $\overline{QO} = 4$ cm, then $\overline{OS} =$ _____.

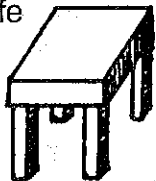



14. Name 3 radii _____



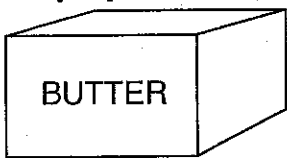
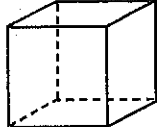
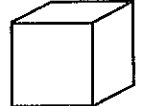

I am the longest line of a circle. What am I?

Read

Geometry Words—Plane and Solid Figures

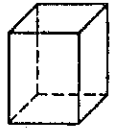
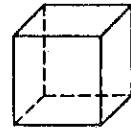


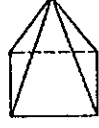
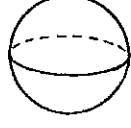
Everyday life  →  →  →  Geometry

A tabletop is an example of a **plane** figure.
A plane has two dimensions – length and width.

Everyday life  →  →  →  Geometry

A pound of butter is an example of a **solid** figure. A solid figure has three dimensions – length, width and thickness (or height).

Names of solid figures

					
rectangular solid	cube	cylinder	cone	pyramid	sphere

Plane or solid figure? Why?

1. window glass

2. a baseball

3. a can of soup

4. this paper

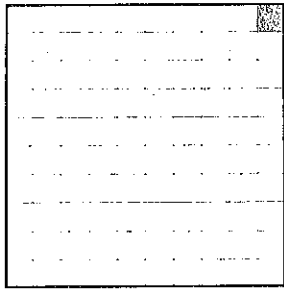
5. Describe 4 examples of planes in your classroom.

6. Describe 4 different solid figures in your classroom.

7. How are cubes and rectangular solids alike and different?

8. How are cones and circles alike and different?

Fractions and Decimals in Hundredths



$\frac{1}{100}$

1 whole has been divided into 100 equal parts.
1 out of the 100 parts is shaded.

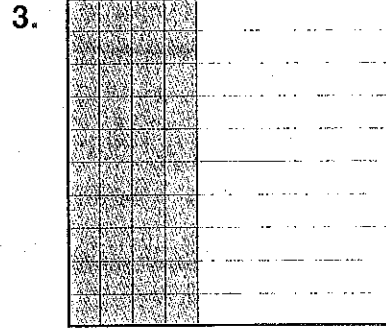
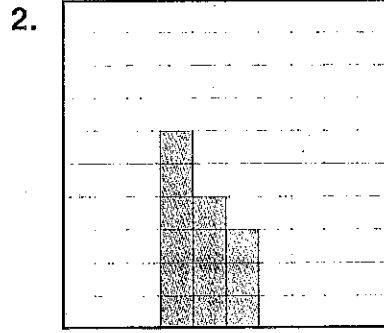
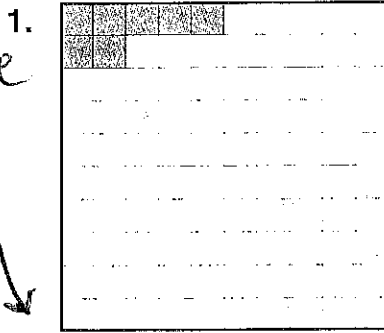


The fraction shaded is $\frac{1}{100}$.
(read "one hundredth")

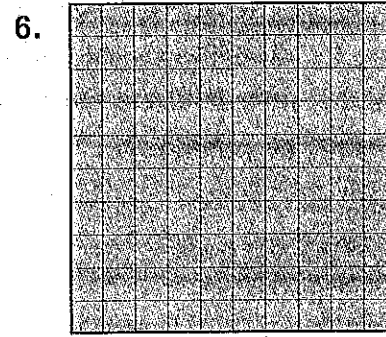
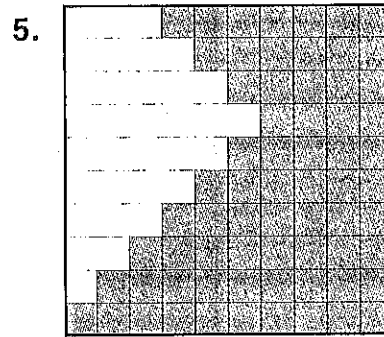
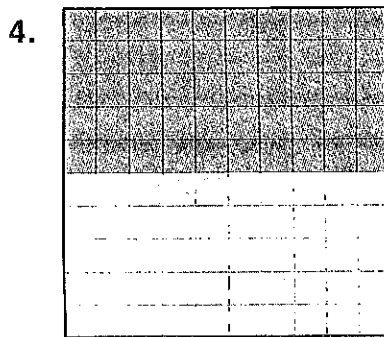
ones	tenths	hundredths
0	0	1

The hundredths' place is the second place after the decimal point.
The decimal part shaded is 0.01.

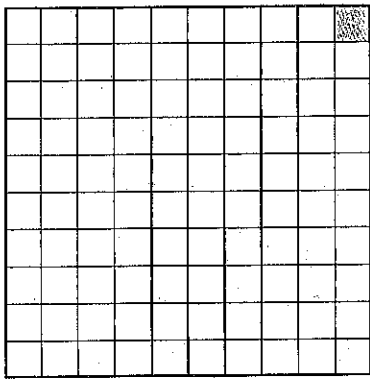
What part is shaded? Write your answer in words, as a fraction and as a decimal.



Seven hundredths
 $\frac{7}{100}$ 0.07



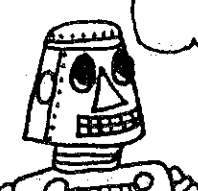
Percent: Another Name for Hundredths



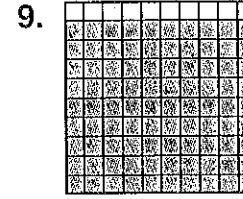
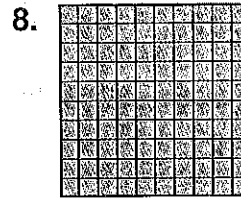
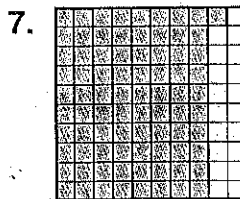
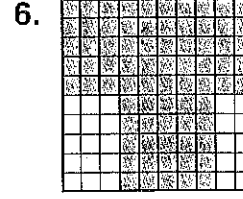
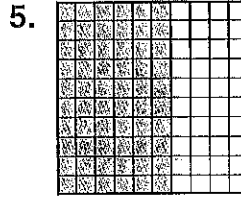
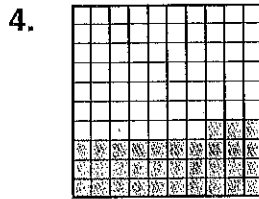
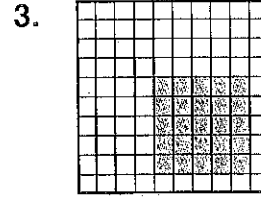
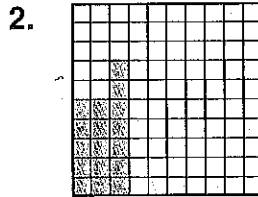
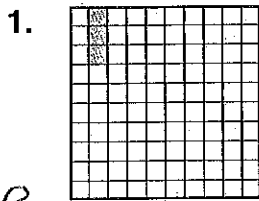
← $\frac{1}{100}$ The shaded part is $\frac{1}{100}$ or 0.01 of the whole.

Percent is another name for "parts per hundred" or hundredths.

The shaded part can also be written as 1 percent or 1%.



What part is shaded? Write your answer as a fraction, as a decimal and as a percent.

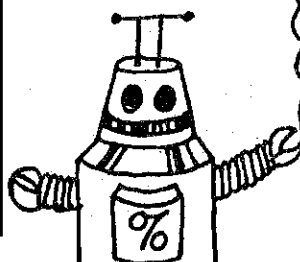
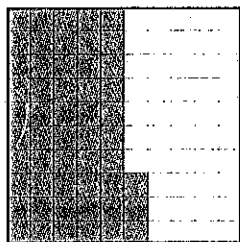


example

→ $\frac{3}{100}$ 0.03 3%

Thinking About Percent

There are 100 students in the gym. 53 of them are girls. What percent are girls? What percent are boys?



A diagram can help solve this problem. 53 of the 100 small squares are shaded to represent the girls. The unshaded represents the boys.

$\frac{53}{100}$ are girls. 53% are girls.
 $\frac{47}{100}$ are boys. 47% are boys.

1. What percent of a dollar is each of these coins?

- example* a. penny 1% b. quarter _____ c. nickel _____
 d. dime _____ e. half dollar _____ f. silver dollar _____

2. A math test has 100 problems. What is the percent score for each student?

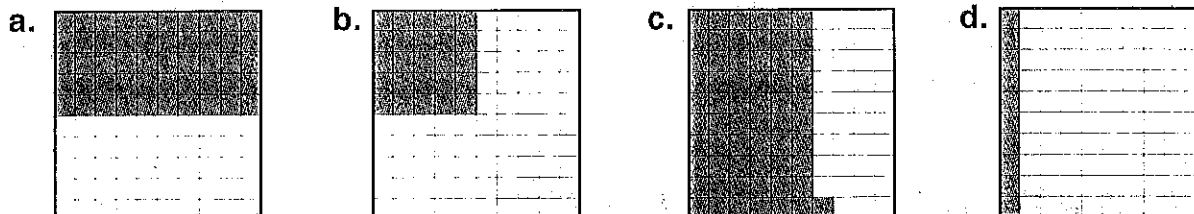
- a. James: 63 correct b. Julia: 91 correct c. Sam: 82 correct

 d. Ali: 70 correct e. Kim: 100 correct f. Mary: 50 correct

3. There are 100 centimeters in a meter. What percent of a meter is a line having a measure of:

- a. 37 cm _____ b. 25 cm _____ c. 100 cm _____
 d. 8 cm _____ e. 61 cm _____ f. 10 cm _____

4. What percent is not shaded?

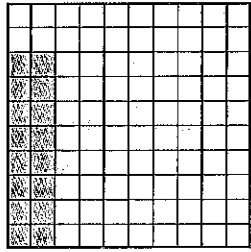


5. 100 students. 25% of them wear glasses. How many students wear glasses?

6. 34 students in a class. 100% of them were present. How many students were absent?

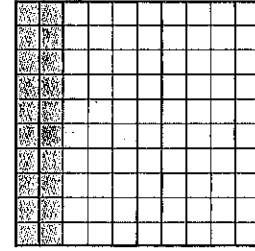
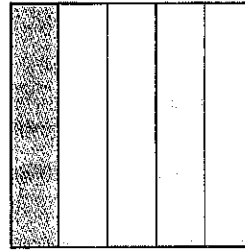
Changing Fractions to Percents Using Models

The large square is divided into 100 small squares. Each small square is $\frac{1}{100}$ or 1%.



16 of the 100 small squares are shaded.
 $\frac{16}{100}$ or 16% is shaded.

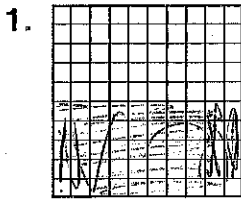
To change $\frac{1}{5}$ to a percent, you can think of how many small squares would be shaded if $\frac{1}{5}$ of the large square is shaded.



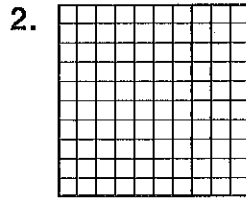
$\frac{1}{5}$ of the square is the same as 20%.

Shade in the fractional part of each square.
 Tell what percent is shaded by the fractional part.

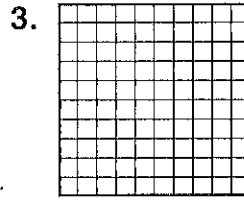
Example



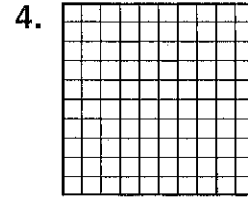
$$\frac{1}{2} = 50\%$$



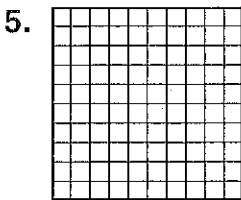
$$\frac{1}{4} = \underline{\quad} \%$$



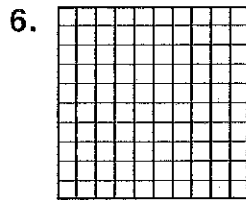
$$\frac{3}{4} = \underline{\quad} \%$$



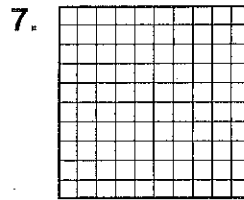
$$\frac{1}{1} = \underline{\quad} \%$$



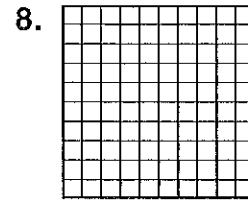
$$\frac{1}{10} = \underline{\quad} \%$$



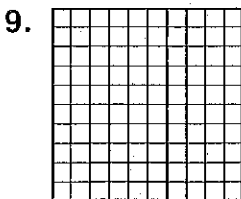
$$\frac{2}{5} = \underline{\quad} \%$$



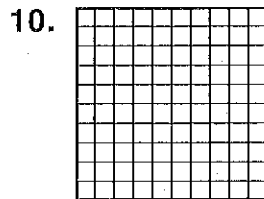
$$\frac{3}{10} = \underline{\quad} \%$$



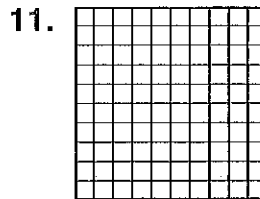
$$\frac{4}{5} = \underline{\quad} \%$$



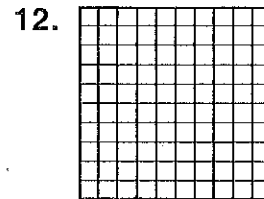
$$\frac{7}{10} = \underline{\quad} \%$$



$$\frac{9}{10} = \underline{\quad} \%$$



$$\frac{1}{50} = \underline{\quad} \%$$



$$\frac{1}{25} = \underline{\quad} \%$$

Changing Percents and Fractions in Hundredths



You can change percents and fractions if you remember that percent means hundredths.

23% compares 23 and 100.

$$23\% = \frac{23}{100}$$

$\frac{81}{100}$ is 81 hundredths.

81 hundredths is 81%.

Write as a fraction.

- example 1. 87% $\frac{87}{100}$ 2. 13% _____ 3. 67% _____ 4. 91% _____
 5. 9% _____ 6. 7% _____ 7. 45% _____ 8. 70% _____
 9. 49% _____ 10. 3% _____ 11. 83% _____ 12. 78% _____

Write a fraction in lowest terms for each percent.

13. 100% _____ 14. 75% _____ 15. 25% _____ 16. 50% $\frac{1}{2}$ example

Write as a percent.

- example 17. $\frac{43}{100}$ 43% 18. $\frac{17}{100}$ _____ 19. $\frac{65}{100}$ _____ 20. $\frac{81}{100}$ _____
 21. $\frac{99}{100}$ _____ 22. $\frac{1}{100}$ _____ 23. $\frac{25}{100}$ _____ 24. $\frac{100}{100}$ _____
 25. $\frac{4}{100}$ _____ 26. $\frac{20}{100}$ _____ 27. $\frac{30}{100}$ _____ 28. $\frac{59}{100}$ _____

Estimate the fractional meaning of each percent.

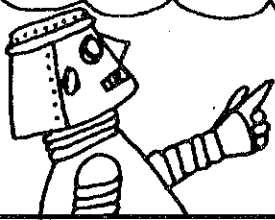
29. 25% of something _____ a. all of it
 30. 100% of something _____ b. a small part of it
 31. 5% of something _____ c. most of it
 32. 50% of something _____ d. $\frac{1}{2}$ of it
 33. 95% of something _____ e. $\frac{1}{4}$ of it

Changing Percent to Decimals

You can change percents to decimals by thinking about the meaning of percent or by using a rule.

Example: Change 89% to a decimal.

Think: 89% means 89 hundredths. 89 hundredths is 0.89.



Rule: To change a percent to a decimal, move the decimal point two places to the left of its original position. Drop the % sign.

$$89\% = 89.\%$$

$$89. = 0.89$$

② ①

Change each percent to a decimal.

example 25% = 0.25 2. 15% _____ 3. 36% _____ 4. 50% _____

5. 27% _____ 6. 30% _____ 7. 98% _____ 8. 100% _____

9. 89% _____ 10. 39% _____ 11. 7% _____ 12. 1% _____

13. 10% _____ 14. 90% _____ 15. 27% _____ 16. 5% _____

17. 12.5% _____ 18. 10.5% _____ 19. 15.2% _____ 20. 26.7% _____

21. 5.5% _____ 22. 8.2% _____ 23. 9.25% _____ 24. 3.4% _____