

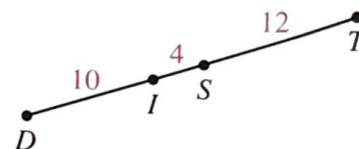
Classroom Exercises

Express the ratio in simplest form.

1. $\frac{12}{20}$
2. $\frac{3p}{5p}$
3. $\frac{4n}{n^2}$
4. $\frac{n^2}{4n}$
5. Is the ratio $a:b$ always, sometimes, or never equal to the ratio $b:a$? Explain.
6. An office copy machine can make a reduction to 90%, thus making the copy slightly smaller than the original. What is the ratio of the length of a line of text in the original to the length of a copy of that line?
7. Barbara is making oatmeal for breakfast. The instructions say to use 3 cups of water with 2 cups of oatmeal.
 - a. What is the ratio of water to oatmeal?
 - b. If Barbara uses 6 cups of water, how much oatmeal does she need?

Express the ratio in simplest form.

8. $DI:IS$
9. $ST:DI$
10. $IT:DT$
11. $DI:IT$
12. $IT:DS$
13. $IS:DI:IT$

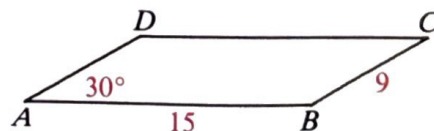


14. What is the ratio of 750 mL to 1.5 L?
15. Can you find the ratio of 2 L to 4 km? Explain.
16. The ratio of the lengths of two segments is 4:3 when they are measured in centimeters. What is their ratio when they are measured in inches?
17. Three numbers aren't known, but the ratio of the numbers is 1:2:5. Is it possible that the numbers are 1, 2, and 5? 10, 20, and 50? 3, 6, and 20? x , $2x$, and $5x$?
18. What is the second term of the proportion $\frac{a}{b} = \frac{x}{y}$?

Written Exercises

$ABCD$ is a parallelogram. Find the value of each ratio.

- A 1. $AB:BC$
2. $AB:CD$
3. $m\angle C:m\angle D$
4. $m\angle B:m\angle C$
5. AD :perimeter of $ABCD$

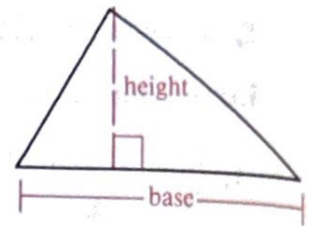


In Exercises 6–14, $x = 12$, $y = 10$, and $z = 24$. Write each ratio in simplest form.

6. x to y
7. z to x
8. $x + y$ to z
9. $\frac{x}{x + z}$
10. $\frac{x + y}{z + y}$
11. $\frac{y + z}{x - y}$
12. $x:y:z$
13. $z:x:y$
14. $x:(x + y):(y + z)$

Exercises 15–20 refer to a triangle. Express the ratio of the height to the base in simplest form.

	15.	16.	17.	18.	19.	20.
height	5 km	1 m	0.6 km	1 m	8 cm	40 mm
base	45 km	0.6 m	0.8 km	85 cm	50 mm	0.2 m



Write the algebraic ratio in simplest form.

21. $\frac{3a}{4ab}$

22. $\frac{2cd}{5c^2}$

23. $\frac{3(x+4)}{a(x+4)}$

In Exercises 24–29 find the measure of each angle.

- B** 24. The ratio of the measures of two complementary angles is 4:5.
 25. The ratio of the measures of two supplementary angles is 11:4.
 26. The measures of the angles of a triangle are in the ratio 3:4:5.
 27. The measures of the acute angles of a right triangle are in the ratio 5:7.
 28. The measures of the angles of an isosceles triangle are in the ratio 3:3:2.
 29. The measures of the angles of a hexagon are in the ratio 4:5:5:8:9:9.
 30. The perimeter of a triangle is 132 cm and the lengths of its sides are in the ratio 8:11:14. Find the length of each side.
 31. The measures of the consecutive angles of a quadrilateral are in the ratio 5:7:11:13. Find the measure of each angle, draw a quadrilateral that satisfies the requirements, and explain why two sides must be parallel.
 32. What is the ratio of the measure of an interior angle to the measure of an exterior angle in a regular hexagon? A regular decagon? A regular n -gon?
 33. A team's best hitter has a lifetime batting average of .320. He has been at bat 325 times.
 a. How many hits has he made?
 b. The same player goes into a slump and doesn't get any hits at all in his next ten times at bat. What is his current batting average to the nearest thousandth?

- C** 34. A basketball player has made 24 points out of 30 free throws. She hopes to make all her next free throws until her free-throw percentage is 85 or better. How many consecutive free throws will she have to make?

35. Points B and C lie on \overline{AD} . Find AC if

$$\frac{AB}{BD} = \frac{3}{4}, \frac{AC}{CD} = \frac{5}{6}, \text{ and } BD = 66.$$

36. Find the ratio of x to y : $\frac{4}{y} + \frac{3}{x} = 44$
 $\frac{12}{y} - \frac{2}{x} = 44$

