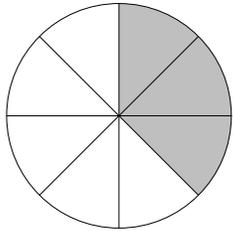


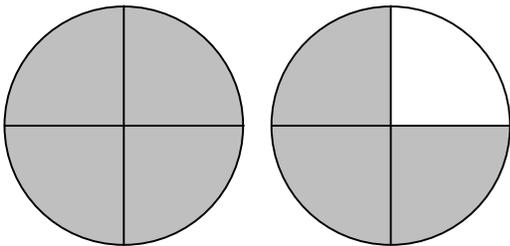
## Introduction to Fractions

Figure A (Use for 1–5)



1. How many parts are there in this circle?
  2. How many parts of the circle are shaded?
  3. What fractional part of the circle is shaded?
4. a. The numerator of  $\frac{3}{8}$  is \_\_\_\_\_.
  - b. It tells the number of parts that \_\_\_\_\_.
  - c. The denominator of  $\frac{3}{8}$  is \_\_\_\_\_.
  - d. It tells the number of parts that \_\_\_\_\_.
5. a. Is the whole circle shaded? \_\_\_\_\_.
  - b. Less than one circle is shaded, so  $\frac{3}{8}$  is less than \_\_\_\_\_.
  - c. The name for a **fraction** that is **less than 1** is a \_\_\_\_\_ fraction.

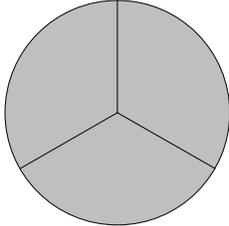
Figure B (Use for 6–15)



6. How many parts make **one** circle in Figure B?
  7. How many of these parts are shaded in both circles together?
  8. The \_\_\_\_\_ of the fraction will tell how many parts make one. (Here, it is one circle.)
9. The \_\_\_\_\_ of the fraction will tell how many parts are shaded.
  10. Write the **fraction** that describes the shaded portion of the circles in Figure B.
  11. Circle the best description of the shaded portion in Figure B.
    - less than one circle
    - one circle
    - more than one circle
  12. What kind of fraction is  $\frac{7}{4}$ ?
  13. How many circles are completely shaded?

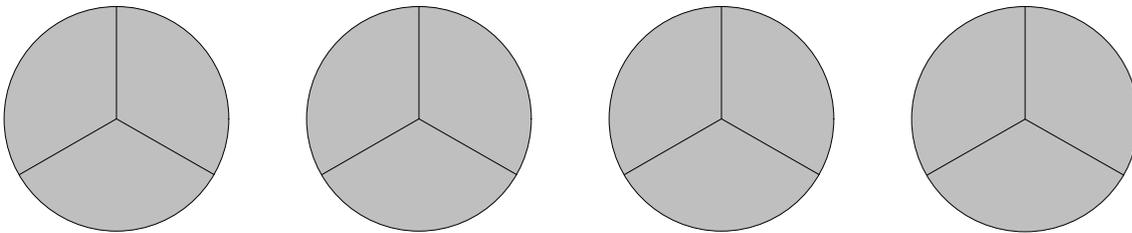
14. What part of the other circle is shaded?
15. Write the shaded portion of Figure B as a mixed number.

Figure C (Use for 16–19)



16. How many parts are shaded in Figure C?
17. How many parts make one circle?
18. Write the **fraction** that describes the shaded part.
19. The value of  $\frac{3}{3}$  is \_\_\_\_\_ .  
(Isn't that the number of completely shaded circles?)

Figure D (Use for 20–25)



20. How many parts are in **one** circle in Figure D?
21. How many parts are shaded in **all** of Figure D?
22. Write the **fraction** that shows the portion of Figure D that is shaded.
23. How many completely shaded circles are in Figure D?
24. What is the value of  $\frac{12}{3}$  ?
25. a. How can you find the value of  $\frac{18}{3}$  ?  
b. Draw circles to represent  $\frac{18}{3}$ . HINT: 18 shaded parts; 3 parts in each circle

26. Draw circles to represent  $\frac{13}{5}$ .

THINK:

- a. How many parts make one circle?
  - b. How many parts are shaded?
  - c. How many circles are completely shaded?
  - d. What part of the other circle is shaded?
  - e. Write the shaded part as a mixed number.
- 27.
- a. Divide 13 by 5. What is the quotient?
  - b. What is the remainder?
  - c. What was the divisor?
  - d. Using the words quotient, remainder, divisor, numerator and denominator, describe how to write the value of an improper fraction as a mixed number.

28. Write each fraction as a whole number or as a mixed number. If it is a proper fraction write "This value is less than one."

- a.  $\frac{15}{8}$       b.  $\frac{27}{9}$       c.  $\frac{47}{15}$       d.  $\frac{15}{47}$       e.  $\frac{12}{12}$

- 29.
- a. Draw  $4\frac{2}{3}$  shaded circles:
  - b. Find the circle that is not completely shaded. How many parts make that whole circle?
  - c. Take the 4 completely shaded circles and divide each one into the same number of parts as the remaining circle (3 parts in each circle)
  - d. Now how many parts are shaded?
  - e. How many parts make any one of the circles?
  - f. What improper fraction describes the portion of the circles that is shaded?
  - g. Write  $4\frac{2}{3}$  as a fraction.

h. Explain what you did and why it works.

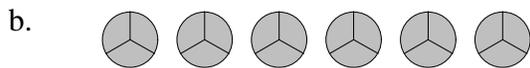
30. Write each mixed number as a fraction.

a.  $7\frac{1}{2}$     b.  $2\frac{3}{4}$     c.  $9\frac{5}{8}$     d.  $1\frac{3}{4}$

**ANSWERS:**

- |                          |                                 |                          |                    |
|--------------------------|---------------------------------|--------------------------|--------------------|
| 1. 8                     | 5. a. no.                       | 10. $\frac{7}{4}$        | 17. 3              |
| 2. 3                     | b. $\frac{3}{8}$ is less than 1 | 11. more than one circle | 18. $\frac{3}{3}$  |
| 3. $\frac{3}{8}$         | c. proper                       | 12. improper             | 19. 1              |
| 4. a. 3                  | 6. 4                            | 13. 1                    | 20. 3              |
| b. are shaded            | 7. 7                            | 14. $\frac{3}{4}$        | 21. 12             |
| c. 8                     | 8. denominator                  | 15. $1\frac{3}{4}$       | 22. $\frac{12}{3}$ |
| d. make the whole circle | 9. numerator                    | 16. 3                    | 23. 4              |
|                          |                                 |                          | 24. 4              |

25. a. divide  $3\overline{)18}$



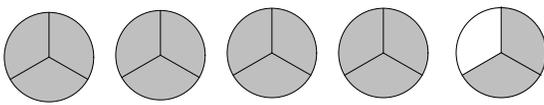
26.  a. 5    b. 13    c. 2    d.  $\frac{3}{5}$     e.  $2\frac{3}{5}$

27. a. 2    b. 3    c. 5

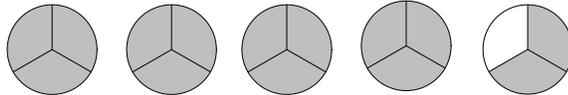
d. To write the value of an improper fraction as a mixed number:

1. divide the numerator by the denominator
2. the quotient is the whole number
3. the fraction's numerator is the remainder and the divisor is the denominator.

28. a.  $1\frac{7}{8}$     b. 3    c.  $3\frac{2}{15}$     d. This value is less than one    e. 1

29. a.  NOTICE that the mixed number  $4\frac{2}{3}$   
means  $4 + \frac{2}{3}$

b. 3 c.   
4 circles  $\times$  3 parts in each = 12 parts. Compare this with 29a.

d.   
12 shaded parts + 2 shaded parts = 14 shaded parts

e. 3      f.  $\frac{14}{3}$       g.  $\frac{14}{3}$

h.  $4\frac{2}{3}$

1. Multiply the whole number  $\times$  the denominator  
 $4 \times 3 = 12$  (This tells the number of parts shaded in the completely shaded circles.)
2. Add the numerator:  $12 + 2 = 14$ . (This tells how many shaded parts there are altogether. This is the fraction's numerator)
3. The denominator must tell the number of parts that are in one circle, so it remains the same (3 here)!

The result is  $\frac{14}{3}$

30. a.  $\frac{15}{2}$       b.  $\frac{11}{4}$       c.  $\frac{77}{8}$       d.  $\frac{7}{4}$

**EXTRA:** Can you tell, without actually dividing, which fractions will be mixed numbers, which will be whole numbers and which will remain as a fraction?

A.  $\frac{30}{7}$       B.  $\frac{30}{6}$       C.  $\frac{7}{30}$       D.  $\frac{7}{7}$

ANSWERS: A. Mixed number    B. Whole number    C. Fraction    D. Whole number

1. If numerator is less than denominator, the fraction's value is less than 1.
2. If numerator = denominator, the fraction = 1.
3. If numerator is greater than denominator, the value is greater than 1.  
(It will be a whole number if the denominator is a factor or divisor of the numerator; otherwise, it will be a mixed number.)

*This instructional aid was prepared by the Tallahassee Community College Learning Commons.*