GRADE 4

UNIT 1

Lesson 5

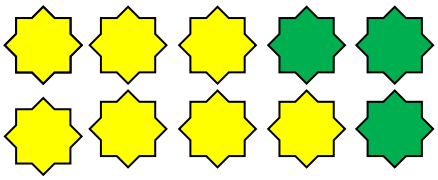
Fractions

In this lesson, you will learn what is a fraction and how to write fractions. Fractions can name parts of a whole, or parts of a set. For example, if we take one egg from a crate containing twelve eggs, then it could be said that 1/12 of the crate was taken, that is one egg was removed from a set of twelve. Similarly, if a pizza is divided into eight equal slices and Dad eats three of those slices, then we could say that Dad ate 3/8 of the pizza.

What is a Fraction?

A fraction is a number that names a part of a whole or a set. Look at the rectangle below. It is divided into four equal parts, and if I take one part of the rectangle then I will be taking 1/4 and leaving 3/4. This is an example of a fraction as part of a whole.

Let us look at a fraction as a part of a set. Below is is a set of ten stars, seven are yellow and three are green. We could say that 7/10 of the set is yellow and 3/10 is green.



Independent Work

Write the fraction that names the shaded part.

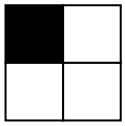
(1) 

(A) 2/3

(B) 2/5

(C) 3/5

(D) 3/2

(2) 

(A) 3/4

(B) 1/3

(C) 1/4

(D) 3/1

(3) 

(A) 1/3

(B) 1/2

(C) 2/1

(D) 2/3

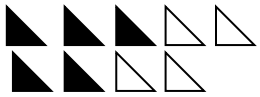
(4) 

(A) 4/6

(B) 3/6

(C) 2/4

(D) 2/6

(5) 

(A) 4/5

(B) 5/4

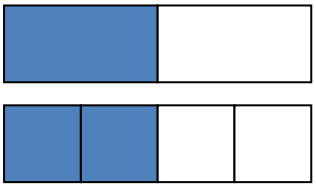
(C) 4/9

(D) 5/9

Answers: (1) B; (2) C; (3) A; (4) A; (5) D.

Equivalent Fractions

A fraction can have many different names. Fractions that name the same amount are called **equivalent fractions**. From the diagrams below you can see that one part out of two is the same as two parts out of four, or in other words 1/4 = 2/4. There are many other fractions that are also equal to 1/2. Fractions such as 3/6, 4/8, 5/10, and 6/12 are all equal to 1/2 and are called equivalent fractions.



To obtain equivalent fractions we need to multiply the numerator and denominator by the same (not zero) number. For example, $\frac{1}{2} \times \frac{2}{2} = \frac{2}{4}$. If we multiply both numerator and denominator by two we obtain, $\frac{2}{4}$ which is equivalent to, $\frac{1}{2}$.

Independent Work

Find three equivalent fractions for each of the following.

(1) 1/2

(A) 2/4; 3/4; 5/4

(B) 1/4; 2/4; 3/4

(C) 2/4; 3/6; 4/8

(D) 1/2; 1/3; 1/4

(2) 1/3

(A) 1/3; 1/4; 1/5

(B) 2/6; 3/9;4/12

(C) 2/6; 3/6; 4/6

(D) 1/3; 2/3; 3/3

(3) 1/4

(A) 2/8; 3/12; 4/16

(B) 1/4; 2/4; 3/4

(C) 2/5; 2/6; 2/7

(D) 3/5; 3/6; 3/7

(4) 1/5

(A) 1/5; 2/5; 3/5

(B) 1/6; 1/7; 1/8

(C) 2/5; 3/6;4/7

(D) 2/10; 3/15; 4/20

(5) 1/6

(A) 1/6; 1/7; 1/8

(B) 2/6; 3/6; 4/6

(C) 2/12; 3/18; 4/24

(D) 2/; 2/8; 2/9

Answers: (1) C; (2) B; (3) A; (4) D; (5) C.

Comparing Fractions

Fractions can be compared in many different ways. One useful way to compare fractions is by examining the numerators and denominators of the fractions. The steps are as follows.

1. **If the fractions have numerators of 1**, check the denominators. The greater fraction has the smaller denominator. For example, 1/2 > 1/3.
2. **If the fractions have the same numerators**, check the denominators. The greater fraction has the smaller denominator. For example, 3/5 > 3/7.
3. **If the fractions have the same denominators,** check the numerators. The greater fraction has the greater numerator. For example, 5/7 > 3/7.

   Note: This sign**, >** means greater than; this sign, < means less than, and this sign, **=** means equal to.

Independent Work

Compare the following fractions. Use >, <, or =.

(1) 1/2 ▭ 1/3

(A) 1/2 < 1/3

(B) 1/2 = 1/3

(C) 1/2 > 1/3

(2) 1/5 ▭ 1/4

(A) 1/5 <1/4

(B) 1/5 = 1/4

(C) 1/5 > 1/4

(3) 2/3 ▭ 2/5

(A) 2/3 < 2/5

(B) 2/3 = 2/5

(C) 2/3 > 2/5

(4) 5/6 ▭ 5/7

(A) 5/6 = 5/7

(B) 5/6 > 5/7

(C) 5/6 < 5/7

(5) 3/8 ▭ 5/8

(A) 3/8 < 5/8

(B) 3/8 > 5/8

(C) 3/8 = 5/8

Answers: (1) C; (2) A; (3) C; (4) B; (5) A.

Ordering Fractions

We can order fractions from least to greatest by comparing them as we did in the previous section. For example, 1/3, 1/5, 1/4, and 1/2 can be ordered from least to greatest by comparing them and then putting them in order. By inspecting the fractions we see they all have numerators of 1, therefore we must compare the denominators. The fraction with the greatest

denominator is the smallest fraction and the fraction with the second greatest denominator goes next. Thus ordered from least to greatest the fractions will be, 1/5, 1/4, 1/3, 1/2.

Independent Work

Order the following fractions from least to greatest.

(1) 1/6, 1/2, 1/5, 1/7

(A) 1/2, 1/5, 1/6, 1/7

(B) 1/7, 1/6, 1/5, 1/2

(C) 1/2, 1/6, 1/5, 1/7

(D) 1/7, 1/5, 1/6, 1/2

(2) 3/4, 3/7, 3/5, 3/8

(A) 3/8, 3/4, 3/5, 3/7

(B) 3/7, 3/8, 3/4, 3/5

(C) 3/4, 3/5, 3/7, 3/8

(D) 3/8, 3/7, 3/5, /3/4

(3) 3/5, 2/5, 1/5, 4/5

(A) 1/5, 2/5, 3/5, 4/5

(B) 4/5, 3/5, 2/5, 1/5

(C) 3/5, 4/5, 1/5. 2/5

(D) 2/5, 1/5, 4/5, 1/5

(4) 3/7, 4/7, 2/7, 5/7

(A) 3/7, 4/7, 2/7, 5/7

(B) 5/7, 4/7, 3/7, 2/7

(C) 2/7, 3/7, 4/7, 5/7

(D) 4/7, 2/7, 5/7, 3/7

(5) 2/3, 2/5, 1/5, 1/3

(A) 1/3, 2/3, 1/5, 2/5

(B) 1/5, 1/3, 2/5, 2/3

(C) 2/3, 2/5, 1/5, 1/3

(D) 2/3, 2/5, 1/3, 1/5

Answers: (1) B; (2) D; (3) A; (4) C; (5) B.

Using Fractions

We can use fractions to solve various problems. If we have a $100 and we are told that 1/5 of it will be needed to pay for food, we can use the fraction, 1/5 to calculate how much money will be needed for food. To find 1/5 of $100 we divide $100 by 5, $100 ÷ 5 = $20. Similarly, if we needed to find 2/5 of $100 we would divide $100 by 5, and then multiply the answer by 2.

Example 1: Find 1/3 of 27.

Solution: Divide 27 by 3, 27 ÷ 3 = 9.

Therefore, 1/3 of 27 = 9

Example 2: Find 3/7 0f 49.

Solution: Divide 49 by 7, 49 ÷ 7 =7. Now we must multiply the answer by 3, 7× 3 =21.

Therefore, 3/7 of 49 = 21

Note: When finding a fraction of any quantity, divide that quantity by the denominator of the fraction and multiply by the numerator.

Independent Work

(1) Find 1/3 of 36

(A) 9

(B) 12

(C) 6

(D) 18

(2) Find 2/5 of 35

(A) 14

(B) 7

(C) 21

(D) 28

(3) There are 42 boys in a club, 3/7 of them will be selected to go on a trip. How many boys will be going on the trip?

(A) 6

(B) 12

(C) 18

(D) 24

(4) Angel has 40 baseball cards. 3/5 of them were given to him by his father. How many cards did his father give him?

(A) 8

(B) 16

(C) 32

(D) 24

(5) George and his family are going away for the weekend. The trip is 60 miles but after driving for 2/3 of the distance they had to stop for gas. How many miles did they drive before they had to stop for gas?

(A) 40

(B) 20

(C) 10

(D) 30

Answers: (1) B; (2) A; (3) C; (4) D; (5) A.

Lesson 5 Quiz

(1) Write the fraction that names the shaded part.

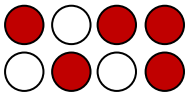
(A) 2/6

(B) 3/6

(C) 4/6

(D) 2/4

(2) Write the fraction that names the shaded part.



(A) 5/8

(B) 4/8

(C) 3/5

(D) 3/8

Find three equivalent fractions for each of the following.

(3) 1/3

(A) 1/3, 2/3; 3/3

(B) 2/6; 3/9; 4/12

(C) 2/6; 3/6; 4/6

(D) 1/3; 1/4; 1/5

(4) 1/5

(A) 1/5; 2/5; 3/5

(B) 1/5; 1/6; 1/7

(C) 2/5; 3/6;4/7

(D) 2/10; 3/15; 4/20

Compare the following fractions. Use >, <, or =.

(5) 1/6 ☐ 1/5

(A) 1/6 < 1/5

(B) 1/6 > 1/5

(C) 1/ = 1/5

(D) None of the above

(6) 3/8 ☐ 3/7

(A) 3/8 = 3/7

(B) 3/8 > 3/7

(C) 3/8 < 3/7

(D) None of the above

Order the following fractions from least to greatest.

(7) 1/3, 1/5, 1/4, 1/2

(A) 1/3; 1/5; ¼; 1/2

(B) 1/2; 1/3; 1/4; 1/5

(C) 1/3; 1/2; 1/5; 1/4

(D) 1/5; 1/4; 1/3; 1/2

(8) 3/5, 2/5, 1/5, 4/5

(A) 4/5; 3/5; 2/5; 1/5

(B) 3/5, 2/5, 1/5, 4/5

(C) 1/5; 2/5; 3/5; 4/5

(D) 4/5; 1/5; 2/5; 3/5

(9) Sherri had seventy-five friends on facebook, 2/5 of them are school friends. How many of Sherri's facebook friends are school friends?

(A) 45

(B) 30

(C) 15

(D) 75

(10) Bob read for forty-eight minutes, 3/8 of that time he listened to his iPod. How many minutes did Bob listen to his iPod?

(A) 18

(B) 24

(C) 30

(D) 42

Answers: (1) C; (2) A; (3) B; (4) D; (5) A; (6) C; (7) D (8) C; (9) B; (10) A.