Fractions

Use with *Student Book* pp. 8–9

MATH CONTENT TOPICS: Q.1.a, Q.1.b, Q.2.a, Q.2.d, Q.2.e, Q.3.a, Q.6.c
MATH PRACTICES: MP.1.a, MP.1.b, MP.1.d, MP.1.e, MP.2.c, MP.4.a

1 Review the Skill

A **fraction** shows part of a whole or part of a group. A fraction bar separates two numbers, the **numerator** (above the fraction bar) and the **denominator** (below the fraction bar). An **improper fraction** has a numerator greater than the denominator. It shows an amount greater than one whole. A **mixed number** has a whole-number part and a fraction part. To compare and order fractions, you first must find a common denominator.

To add or subtract fractions, the fractions first must have common denominators. Next, you must add or subtract the numerators. To multiply fractions, multiply the numerators and then multiply the denominators. To divide fractions, multiply the dividend by the reciprocal of the divisor. To find the reciprocal, switch the numerator and the denominator in the fraction.

2 Refine the Skill

By refining the skills involved in operations with fractions, you will improve your study and test-taking abilities, especially as they relate to the GED® Mathematical Reasoning Test. Study the information and table below. Then answer the questions that follow.

a Some problems will ask you to compare fractions with different denominators. These fractions are called *unlike fractions*. To solve problems with unlike fractions, rewrite the fractions using one common denominator. Then subtract the numerators to find the difference.

b When finding *how much more*, subtract the amounts. In question 1, it may be helpful to write the mixed numbers as improper fractions, since $\frac{1}{8} < \frac{1}{4}$.

The following chart shows the yards of fabric needed for each size of a dress pattern.

YARDS OF FABRIC NEEDED FOR DRESS PATTERNS

Size	45-in. Fabric (Yd)	60-in. Fabric (Yd)
XS	$3\frac{1}{4}$	$2\frac{3}{4}$
S	$3\frac{1}{2}$	$3\frac{1}{4}$
M	$3\frac{5}{8}$	$3\frac{3}{4}$
L	$3\frac{7}{8}$	$4\frac{1}{8}$
XL	$4\frac{1}{8}$	$4\frac{3}{8}$

TEST-TAKING TIPS

You can reduce some fractions before you multiply or divide to make your calculations simpler. To simplify, divide the numerator and denominator by the same number.

$$\frac{1}{2} \times \frac{4}{5} = \frac{1 \times \overset{2}{\cancel{4}}}{\underset{1}{\cancel{2}} \times 5} = \frac{2}{5}$$

1. Sharon is sewing an extra-small dress for her daughter and an extra-large dress for herself using 45-in. fabric. How much more fabric will she need for the extra-large dress than for the extra-small dress?

   A. $\frac{1}{8}$ yard

   B. $\frac{7}{8}$ yard

   C. $1\frac{1}{8}$ yard

   D. $2\frac{1}{4}$ yard

Spotlighted Item: DRAG-AND-DROP

DIRECTIONS: Read each question. Then use the drag-and-drop options to complete each answer.

2. Two out of every five students in a high school are male. What fraction of the high school students are male?

$\frac{\square}{\square}$

1	2	3	4	5

3. There are 64 students in the school band. There are 16 trumpet players. What fraction of the band are trumpet players?

$\frac{\square}{\square}$

1	3	4	5	7	8

4. The school chess club celebrated its recent championship. The 15-member team went out for desert. Five members ordered pie, 4 ordered ice cream, 3 ordered cake, and 3 ordered milk shakes. What fraction of the chess club members ordered ice cream?

$\frac{\square}{\square}$

1	3	4	5	11	15

5. Anna withdrew $50 from her checking account. She spent $28 on a pair of shoes. What fraction of her money does Anna have left?

$\frac{\square}{\square}$

11	14	25	28	50

DIRECTIONS: Examine the information and table. Then read each question, and use the drag-and-drop options to complete each answer.

The table lists five students and the fraction of homework that each student completed.

VARIOUS STUDENTS' HOMEWORK COMPLETION

Student	Fraction Of Homework Completed
Dara	$\frac{2}{5}$
Natalia	$\frac{7}{10}$
Miguel	$\frac{1}{2}$
Ethan	$\frac{9}{10}$
Walt	$\frac{4}{5}$

6. List the students from the table above in order of the amount of homework they completed, beginning with the one that completed the most.

1	2	3
4	5	

7. The fraction of homework completed by which two students in the table equals the fraction of homework completed by Ethan?

☐ and ☐

8. A restaurant served 72 customers for breakfast. Of those, 18 had omelets. What fraction of the customers had omelets?

$\frac{\square}{\square}$

1	2	3	4	6	18	36

3 Master the Skill

★ Spotlighted Item: DRAG-AND-DROP

DIRECTIONS: Read each question. Then use the drag-and-drop options to complete the answer.

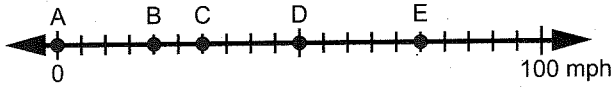
9. Quentin is filling a glass that holds $1\frac{3}{4}$ cups of water. He is using a $\frac{1}{4}$-cup measuring cup. How many times will he have to fill the smaller measuring cup to equal $1\frac{3}{4}$ cups?

☐ times

5	6	7	8	9

DIRECTIONS: Examine the information and number line. Then read each question, and use the drag-and-drop options to complete each answer.

The number line below represents the speeds, in miles per h, for five cars, labeled A through E. The time it takes the cars to travel 50 miles, in h, is given by 50 divided by the speed.



10. For which car is the time it takes to go 50 miles undefined?

☐

A	B	C	D	E

11. How many h more does it take Car B to go the 50 miles than Car D?

$\frac{\square}{\square}$

0	1	2	3	4	5

DIRECTIONS: Examine the information and table. Then read each question, and use the drag-and-drop options to complete each answer.

The table below shows the number of miles that Luke rode his bicycle over the course of one week.

LUKE'S WEEKLY BICYCLING MILEAGE

Day	Number of Miles
Sunday	$18\frac{2}{3}$
Monday	$25\frac{9}{10}$
Tuesday	$15\frac{1}{2}$
Wednesday	$12\frac{7}{8}$
Thursday	$32\frac{5}{6}$
Friday	$19\frac{7}{8}$
Saturday	$24\frac{5}{6}$

12. How many miles did Luke ride on the weekend?

$\square\frac{\square}{\square}$

1	2	17	24	42	43	44

13. How many fewer miles did Luke ride on Wednesday than he rode on Monday?

$\square\frac{\square}{\square}$

1	12	13	20	40

DIRECTIONS: Read the question. Then use the drag-and-drop options to complete each answer.

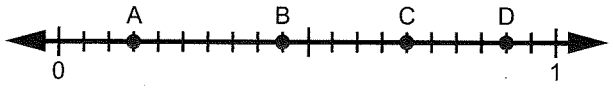
14. Ginny has 26 tests to correct. It takes her $\frac{1}{9}$ of an h to correct each test. How many h will it take Ginny to correct all the tests?

$2\frac{\square}{\square}$

5	6	7	8	9

DIRECTIONS: Examine the information and number line. Then read each question, and use the drag-and-drop options to complete each answer.

The following number line shows the interval from 0 to 1, divided into 20 equal segments.



15. In decreasing order, list the fractional values of the points, reduced to lowest terms.

$\frac{\square}{\square}$ $\frac{\square}{\square}$ $\frac{\square}{\square}$ $\frac{\square}{\square}$

3	7	9	10	20

16. What is the distance between points B and D, expressed as a fraction reduced to lowest terms?

$\frac{\square}{\square}$

4	9	10	13	18	20

DIRECTIONS: Read the information and question. Then use the drag-and-drop options to complete each answer.

The distributive law of addition and subtraction says: [(3)(5) + (3)(7)] = (3)(5 + 7).

17. Use the distributive law to simplify the following fraction.

$$\frac{(105 - 40)}{5} = \frac{(5)(\square - \square)}{5} = \square$$

6	8	13	20	21

18. Use the distributive law to simplify the following fraction.

$$\frac{(21 + 56 - 28)}{7} = \frac{(7)(\square + \square - \square)}{7} = \square$$

2	3	4	7	8	11

DIRECTIONS: Read the question. Then use the drag-and-drop options to complete the answer.

19. Mario needs to work $32\frac{5}{6}$ h this week. He has worked $19\frac{7}{8}$ h so far. How many more h must Mario work this week?

$\square\frac{\square}{\square}$

3	4	8	12	23	24