

Fractionforge — Activity Book

A Spark & Anvil activity book — puzzles, questions, and fun from Fractionforge.

Write in the book, circle your answers, and check the Answer Key at the back.

1. Fraction Basics

Circle the correct answer

1. In the fraction $\frac{3}{8}$, which number is the numerator?
(A) 8 (B) 3 (C) 11 (D) $\frac{3}{8}$
2. What does the denominator of a fraction tell you?
(A) How many wholes you need (B) How many equal parts the whole is divided into
(C) The total number of objects in a group (D) How many parts you have selected
3. A unit fraction always has which number as its numerator?
(A) 0 (B) The same number as the denominator (C) 2 (D) 1
4. A pie is cut into 6 equal slices. You eat 2 slices. What fraction of the pie did you eat?
(A) $\frac{2}{4}$ (B) $\frac{4}{6}$ (C) $\frac{2}{6}$ (D) $\frac{6}{2}$
5. Which of these fractions is greater than 1 whole?
(A) $\frac{1}{8}$ (B) $\frac{7}{5}$ (C) $\frac{3}{4}$ (D) $\frac{5}{5}$
6. Where does the fraction $\frac{3}{4}$ belong on a number line between 0 and 1?
(A) Exactly at the halfway point (B) Three-fourths of the way from 0 to 1 (C) One-fourth of the way from 0 to 1 (D) Past the 1 on the number line

Write the answer

7. A rectangle is divided into 5 equal parts, and 3 parts are shaded. What fraction of the rectangle is NOT shaded?
Answer: _____
8. Which fraction represents exactly one whole?
Answer: _____
9. A class of 24 students is split into groups. If $\frac{1}{4}$ of the students are in the red group, how many students are in the red group?
Answer: _____

10. Put these fractions in order from smallest to largest: $\frac{1}{2}$, $\frac{1}{8}$, $\frac{1}{4}$

Answer: _____

Match each question to its answer

1. How can you express the whole number 3 as a fraction with a denominator of 4? →
2. A number line is marked from 0 to 1 with 6 equal spaces. An arrow points to the 4th mark. What fraction does the arrow represent? →
3. Maya says that $\frac{1}{3}$ is larger than $\frac{1}{2}$ because 3 is larger than 2. Is she correct? →
4. A fraction has a numerator of 5 and a denominator of 5. What type of number does this fraction represent? →
5. A baker cuts 3 identical cakes into different numbers of equal slices: 4 slices, 6 slices, and 8 slices. She takes 1 slice from each cake. From which cake did she take the largest piece? →

- (A) A whole number (it equals 1)
 - (B) $\frac{12}{4}$
 - (C) The cake cut into 4 slices, because $\frac{1}{4}$ is the largest unit fraction of the three
 - (D) No, because a larger denominator means each part is smaller, so $\frac{1}{3}$ is less than $\frac{1}{2}$
 - (E) $\frac{4}{6}$
-

2. Equivalent Fractions

Circle the correct answer

11. Which fraction is equivalent to $\frac{1}{2}$?

- (A) $\frac{3}{6}$ (B) $\frac{2}{6}$ (C) $\frac{3}{4}$ (D) $\frac{1}{3}$

12. What rule do you use to create an equivalent fraction?

- (A) Multiply or divide both the numerator and denominator by the same nonzero number (B) Multiply the numerator and divide the denominator (C) Add the same number to the numerator and denominator (D) Switch the numerator and denominator

13. What is the simplest form of $\frac{6}{8}$?

- (A) $\frac{3}{4}$ (B) $\frac{6}{8}$ (C) $\frac{2}{4}$ (D) $\frac{1}{2}$

14. Find the missing number: $\frac{2}{5} = \frac{?}{15}$

- (A) 3 (B) 6 (C) 10 (D) 5

15. Which pair of fractions are NOT equivalent?

- (A) $\frac{1}{4}$ and $\frac{3}{12}$ (B) $\frac{2}{3}$ and $\frac{4}{9}$ (C) $\frac{2}{5}$ and $\frac{4}{10}$ (D) $\frac{3}{7}$ and $\frac{6}{14}$

16. Simplify $12/18$ to its lowest terms.

(A) $2/3$ (B) $3/4$ (C) $4/6$ (D) $6/9$

Write the answer

17. A pizza is cut into 8 slices and you eat 4. Your friend's identical pizza is cut into 4 slices and she eats 2. Who ate more pizza?

Answer: _____

18. Find the missing number: $?/20 = 3/5$

Answer: _____

19. What is the greatest common factor (GCF) of 16 and 24?

Answer: _____

20. How many fractions are equivalent to $1/3$?

Answer: _____

Match each question to its answer

1. Simplify the fraction $15/25$. →

2. A student claims that $3/4$ and $9/16$ are equivalent because $3 \times 3 = 9$ and $4 \times 4 = 16$. What mistake did the student make? →

3. Two fraction bars are shown. The first is divided into 3 equal parts with 2 shaded. The second is divided into 12 equal parts. How many parts of the second bar must be shaded to show an equivalent fraction? →

4. Which of these fractions is already in simplest form? →

5. A recipe calls for $2/3$ cup of sugar. You only have a $1/6$ -cup measuring scoop. How many scoops do you need? →

(A) 8

(B) The student multiplied the numerator by 3 and the denominator by 4; both must be multiplied by the same number

(C) $3/5$

(D) 4 scoops, because $2/3 = 4/6$

(E) $7/12$

3. Comparing Fractions

Circle the correct answer

21. Which is greater: $3/5$ or $2/3$?

(A) $2/3$, because $2/3 = 10/15$ while $3/5 = 9/15$ (B) $3/5$, because 3 is a larger

numerator than 2 (C) They are equal (D) $\frac{3}{5}$, because 5 is a larger denominator

22. Which fraction is closest to $\frac{1}{2}$: $\frac{3}{8}$, $\frac{5}{9}$, or $\frac{4}{7}$?

(A) $\frac{3}{8}$, because 8 is the largest denominator (B) $\frac{4}{7}$, because $\frac{4}{7} = 0.571\ldots$ which is closest to 0.5 (C) $\frac{5}{9}$, because the numerator is the biggest (D) They are all equally close to $\frac{1}{2}$

23. Order these fractions from least to greatest: $\frac{5}{6}$, $\frac{3}{4}$, $\frac{7}{12}$

(A) $\frac{5}{6}$, $\frac{3}{4}$, $\frac{7}{12}$ (B) $\frac{7}{12}$, $\frac{3}{4}$, $\frac{5}{6}$ (C) $\frac{7}{12}$, $\frac{5}{6}$, $\frac{3}{4}$ (D) $\frac{3}{4}$, $\frac{7}{12}$, $\frac{5}{6}$

24. Without finding a common denominator, how can you tell that $\frac{5}{8}$ is less than $\frac{3}{4}$?

(A) Because 5 is greater than 3 (B) You cannot compare fractions without common denominators (C) Because $\frac{3}{4} = \frac{6}{8}$, and $\frac{5}{8} < \frac{6}{8}$ (D) Because 8 is greater than 4

25. Which symbol correctly completes: $\frac{4}{9}$ ____ $\frac{5}{12}$?

(A) =, because they are equivalent (B) >, because $\frac{4}{9} = \frac{16}{36}$ and $\frac{5}{12} = \frac{15}{36}$ (C) <, because $4 < 5$ (D) <, because $9 < 12$

26. On a number line from 0 to 1, which fraction is located between $\frac{1}{3}$ and $\frac{1}{2}$?

(A) $\frac{7}{12}$ (B) $\frac{2}{7}$ (C) $\frac{1}{4}$ (D) $\frac{5}{12}$

Write the answer

27. Two students ran laps around a track. Alex ran $\frac{5}{6}$ of a lap and Jordan ran $\frac{7}{8}$ of a lap. Who ran farther?

Answer: _____

28. Which fraction is greater than $\frac{1}{2}$ but less than $\frac{3}{4}$?

Answer: _____

29. Cross-multiplication is a shortcut for comparing fractions. To compare $\frac{a}{b}$ and $\frac{c}{d}$, you compute $a \times d$ and $b \times c$. If $a \times d > b \times c$, then $\frac{a}{b} > \frac{c}{d}$. Use this to compare $\frac{3}{7}$ and $\frac{5}{11}$.

Answer: _____

30. Which strategy is most efficient for comparing $\frac{7}{10}$ and $\frac{2}{3}$?

Answer: _____

Match each question to its answer

1. Three friends each ate part of an identical sandwich. Maria ate $\frac{2}{5}$, Ben ate $\frac{3}{10}$, and Carla ate $\frac{7}{20}$. Who ate the most? →

2. How can you quickly tell that $\frac{11}{20}$ is greater than $\frac{1}{2}$ without converting to a common denominator? →

3. True or false: If two fractions have the same numerator, the fraction with the

smaller denominator is always greater. →

4. Arrange in order from least to greatest: $\frac{2}{3}$, $\frac{5}{8}$, $\frac{7}{12}$, $\frac{3}{4}$ →

5. A student says: 'I can always compare fractions by converting to decimals.' Is this a reliable strategy? →

(A) True, because a smaller denominator means each piece is bigger

(B) It usually works, but some fractions like $\frac{1}{3}$ produce repeating decimals that are harder to compare precisely

(C) Maria, because $\frac{2}{5} = \frac{8}{20}$, which is greater than $\frac{7}{20}$ and $\frac{6}{20}$

(D) $\frac{7}{12}$, $\frac{5}{8}$, $\frac{2}{3}$, $\frac{3}{4}$

(E) Because half of 20 is 10, and $11 > 10$, so $\frac{11}{20} > \frac{10}{20} = \frac{1}{2}$

4. Adding and Subtracting Fractions

Circle the correct answer

31. What is $\frac{1}{4} + \frac{2}{4}$?

(A) $\frac{3}{4}$ (B) $\frac{3}{8}$ (C) $\frac{2}{4}$ (D) $\frac{1}{2}$

32. What is $\frac{2}{3} + \frac{1}{6}$?

(A) $\frac{2}{6}$ (B) $\frac{3}{6}$ (C) $\frac{3}{9}$ (D) $\frac{5}{6}$

33. What is $\frac{3}{4} - \frac{1}{3}$?

(A) $\frac{5}{12}$ (B) $\frac{2}{12}$ (C) $\frac{2}{1}$ (D) $\frac{1}{6}$

34. What is $\frac{5}{8} + \frac{3}{8}$?

(A) $\frac{8}{8}$ only as a fraction, never as 1 (B) $\frac{15}{8}$ (C) $\frac{8}{16}$ (D) 1 or $\frac{8}{8}$

35. What is $\frac{1}{2} + \frac{1}{3} + \frac{1}{6}$?

(A) $\frac{5}{6}$ (B) $\frac{3}{6}$ (C) $\frac{3}{11}$ (D) 1

36. What is $\frac{7}{10} - \frac{2}{5}$?

(A) $\frac{3}{10}$ (B) $\frac{5}{5}$ (C) $\frac{5}{10}$ (D) $\frac{5}{15}$

Write the answer

37. What is $2\frac{1}{3} + 1\frac{1}{4}$?

Answer: _____

38. What is $4\frac{1}{6} - 2\frac{3}{4}$?

Answer: _____

39. Jada walks $\frac{3}{4}$ mile to school and then $\frac{2}{5}$ mile to the library. How far did she walk in total?

Answer: _____

40. A ribbon is $\frac{5}{6}$ yard long. You cut off $\frac{1}{4}$ yard. How much ribbon remains?

Answer: _____

Match each question to its answer

1. Why is it wrong to add fractions by adding both the numerators and the denominators (like $\frac{1}{3} + \frac{1}{4} = \frac{2}{7}$)? →

2. What is $\frac{5}{9} + \frac{7}{12}$? Give your answer in simplest form. →

3. Marcus has $3\frac{1}{2}$ cups of flour. A recipe needs $2\frac{2}{3}$ cups. How much flour will Marcus have left? →

4. Estimate: Is $\frac{5}{8} + \frac{7}{12}$ closer to 1 or closer to $1\frac{1}{2}$? →

5. Solve and simplify: $\frac{3}{4} + \frac{5}{6} - \frac{1}{3}$ →

(A) $\frac{41}{36}$ or $1\frac{5}{36}$

(B) $1\frac{1}{4}$

(C) Because the denominators represent the size of each piece, and adding them changes what size the pieces are

(D) $\frac{5}{6}$ cup

(E) Closer to 1, because $\frac{5}{8}$ is about 0.6 and $\frac{7}{12}$ is about 0.6, giving about 1.2

5. Multiplying Fractions

Circle the correct answer

41. What is $\frac{2}{3} \times \frac{4}{5}$?

(A) $\frac{8}{15}$ (B) $\frac{6}{8}$ (C) $\frac{6}{15}$ (D) $\frac{8}{8}$

42. What is $\frac{3}{4} \times 8$?

(A) $11\frac{1}{4}$ (B) 6 (C) $\frac{3}{32}$ (D) 12

43. When you multiply a positive number by a fraction less than 1, the product is:

(A) Always less than the fraction (B) Equal to the original number (C) Less than the original number (D) Greater than the original number

44. A rectangular garden is $\frac{3}{4}$ mile long and $\frac{2}{5}$ mile wide. What is its area?

(A) $\frac{3}{10}$ square mile (B) $\frac{6}{20}$ square mile (C) $\frac{5}{9}$ square mile (D) $\frac{23}{20}$ square mile

45. Simplify before multiplying: $\frac{5}{8} \times \frac{4}{15}$

(A) $\frac{20}{120}$ (B) $\frac{9}{23}$ (C) $\frac{1}{3}$ (D) $\frac{1}{6}$

46. What is $2\frac{1}{3} \times 1\frac{1}{2}$?

(A) $2\frac{1}{6}$ (B) $3\frac{1}{6}$ (C) $2\frac{2}{6}$ (D) $3\frac{1}{2}$

Write the answer

47. If a recipe calls for $\frac{2}{3}$ cup of oil and you want to make $\frac{3}{4}$ of the recipe, how much oil do you need?

Answer: _____

48. An area model shows a square divided into a 5×4 grid. If 3 columns and 2 rows are shaded, what multiplication does the shaded overlap region represent?

Answer: _____

49. Without calculating, which product is greatest: $\frac{1}{2} \times \frac{1}{2}$, $\frac{1}{3} \times \frac{1}{3}$, or $\frac{1}{4} \times \frac{1}{4}$?

Answer: _____

50. A painter uses $\frac{3}{4}$ gallon of paint per room. How many gallons does she need for 5 rooms?

Answer: _____

Match each question to its answer

1. Is it true that multiplying two fractions always gives a product smaller than either fraction? →

2. Simplify before multiplying: $\frac{9}{14} \times \frac{7}{12}$ →

3. A square has side length $\frac{5}{6}$ inch. What is the area of the square? →

4. What is $1\frac{3}{5} \times 2\frac{1}{4}$? →

5. A map has a scale where 1 inch represents $\frac{3}{4}$ mile. If two cities are $6\frac{2}{3}$ inches apart on the map, what is the actual distance? →

(A) $3\frac{3}{5}$

(B) Only when both fractions are between 0 and 1; if either fraction is greater than 1, the product can be larger

(C) 5 miles

(D) $\frac{3}{8}$

(E) $\frac{25}{36}$ square inches

6. fractions

Circle the correct answer

51. Convert $1\frac{1}{2}$ to an improper fraction.

(A) $\frac{2}{2}$ (B) $\frac{1}{2}$ (C) $\frac{2}{3}$ (D) $\frac{3}{2}$

52. Convert $\frac{7}{4}$ to a mixed number.

(A) $3\frac{1}{4}$ (B) $7\frac{1}{4}$ (C) $1\frac{3}{4}$ (D) $1\frac{1}{4}$

53. Convert $2\frac{3}{5}$ to an improper fraction.

(A) $\frac{23}{5}$ (B) $\frac{5}{5}$ (C) $\frac{13}{5}$ (D) $\frac{6}{5}$

54. Convert $\frac{11}{3}$ to a mixed number.

(A) $1\frac{1}{3}$ (B) $2\frac{3}{3}$ (C) $3\frac{1}{3}$ (D) $3\frac{2}{3}$

55. Why is $2\frac{3}{4}$ NOT equal to $\frac{5}{4}$?

(A) They are equal (B) You cannot convert mixed numbers (C) Because $2 + 3 = 5$ is wrong arithmetic (D) $2\frac{3}{4} = \frac{(2 \times 4 + 3)}{4} = \frac{11}{4}$, not $\frac{5}{4}$

56. Convert $\frac{17}{6}$ to a mixed number.

(A) $2\frac{5}{6}$ (B) $3\frac{5}{6}$ (C) $2\frac{1}{6}$ (D) $1\frac{7}{6}$

Write the answer

57. Is $\frac{9}{5}$ greater than or less than 2?

Answer: _____

58. Which is an improper fraction?

Answer: _____

59. Convert $4\frac{2}{3}$ to an improper fraction.

Answer: _____

60. A student writes $3\frac{2}{7} = \frac{5}{7}$. Explain the error and give the correct answer.

Answer: _____

Match each question to its answer

1. Add: $1\frac{2}{5} + 2\frac{1}{5} \rightarrow$

2. Subtract: $3\frac{5}{8} - 1\frac{3}{8} \rightarrow$

3. Add: $2\frac{3}{4} + 1\frac{3}{4} \rightarrow$

4. Subtract: $4\frac{1}{6} - 2\frac{5}{6} \rightarrow$

5. Convert 5 to an improper fraction with denominator 3. $\rightarrow$

(A) $1\frac{2}{6}$ or $1\frac{1}{3}$

(B) $3\frac{3}{5}$

(C) $\frac{15}{3}$

(D) $2\frac{2}{8}$ or $2\frac{1}{4}$

(E) $4\frac{1}{2}$

7. fractions

Circle the correct answer

61. What is $\frac{1}{2}$ as a decimal?
(A) 0.5 (B) 0.2 (C) 1.2 (D) 0.12
62. What is 50% as a fraction in simplest form?
(A) $\frac{1}{50}$ (B) $\frac{5}{10}$ (C) $\frac{50}{1}$ (D) $\frac{1}{2}$
63. Convert $\frac{3}{4}$ to a percent.
(A) 0.75% (B) 75% (C) 7.5% (D) 34%
64. What is 0.25 as a fraction?
(A) $\frac{1}{4}$ (B) $\frac{25}{10}$ (C) $\frac{1}{25}$ (D) $\frac{2}{5}$
65. Convert 35% to a decimal.
(A) 0.035 (B) 3.5 (C) 35.0 (D) 0.35
66. Convert 0.6 to a fraction in simplest form.
(A) $\frac{1}{6}$ (B) $\frac{3}{5}$ (C) $\frac{6}{5}$ (D) $\frac{6}{100}$

Write the answer

67. A student says $35\% = 3.5$ as a decimal. What is the error?
Answer: _____
68. What is $\frac{1}{8}$ as a decimal?
Answer: _____
69. Convert $\frac{2}{3}$ to a decimal. Is it terminating or repeating?
Answer: _____
70. What percent of a meter is 0.4 meters?
Answer: _____

Match each question to its answer

1. A shirt originally costs \$40. It is 25% off. How much do you save? →
2. Convert 0.375 to a fraction in simplest form. →
3. A student scored 18 out of 24 on a test. What percent is that? →
4. Put in order from least to greatest: 60%, $\frac{2}{3}$, 0.59 →
5. What is $\frac{5}{6}$ as a percent? Round to the nearest whole percent. →

- (A) 0.59, 60%, $\frac{2}{3}$
 - (B) \$10
 - (C) 83%
 - (D) $\frac{3}{8}$
 - (E) 75%
-

8. ratios

Circle the correct answer

71. What is the ratio of 3 cats to 5 dogs?
(A) 3:8 (B) 5:3 (C) 8:3 (D) 3:5
72. Write the ratio 6 to 9 in simplest form.
(A) 2:3 (B) 3:2 (C) 6:9 (D) 1:3
73. A recipe uses 2 cups of flour for every 3 cups of sugar. What is the ratio of flour to sugar?
(A) 2:3 (B) 5:2 (C) 3:2 (D) 2:5
74. What is the unit rate if you earn \$45 in 5 hours?
(A) \$9 per hour (B) \$5 per hour (C) \$40 per hour (D) \$45 per hour
75. A class has 12 boys and 18 girls. What is the ratio of boys to total students?
(A) 12:18 (B) 18:12 (C) 2:3 (D) 12:30 or 2:5
76. What does it mean for two ratios to be equivalent?
(A) They represent the same comparison when simplified (B) They are always equal to 1 (C) They have the same numbers (D) They add to the same total

Write the answer

77. Is the ratio 6:10 equivalent to 9:15?
Answer: _____
78. If the ratio of red to blue marbles is 3:7, and there are 21 blue marbles, how many red marbles are there?
Answer: _____
79. What is the unit price of a 6-pack of juice that costs \$4.50?
Answer: _____
80. A car travels 180 miles using 6 gallons of gas. What is the miles per gallon rate?
Answer: _____

Match each question to its answer

1. If 3 pencils cost \$1.50, how much do 10 pencils cost? →
2. Solve the proportion: $\frac{4}{6} = \frac{x}{15}$ →
3. A map scale is 1 inch = 5 miles. Two cities are 3.5 inches apart on the map. What is the actual distance? →
4. Which is the better deal: 8 oz for \$2.40 or 12 oz for \$3.00? →
5. Solve: $\frac{5}{8} = \frac{20}{x}$ →

- (A) \$5.00
 - (B) $x = 32$
 - (C) 12 oz for \$3.00 (unit price \$0.25/oz vs \$0.30/oz)
 - (D) 17.5 miles
 - (E) $x = 10$
-

9. Mathematics

Circle the correct answer

81. What fraction of an hour is 20 minutes?
(A) $\frac{1}{4}$ (B) $\frac{1}{3}$ (C) $\frac{2}{5}$ (D) $\frac{1}{2}$
82. If a recipe calls for $\frac{3}{4}$ cup flour and you halve the recipe, how much flour?
(A) $\frac{1}{2}$ cup (B) $\frac{3}{16}$ cup (C) $\frac{3}{4}$ cup (D) $\frac{3}{8}$ cup
83. What is the simplest form of $\frac{12}{18}$?
(A) $\frac{6}{9}$ (B) $\frac{3}{4}$ (C) $\frac{2}{3}$ (D) $\frac{4}{6}$
84. A pizza has 8 slices. You eat 3. What fraction is left?
(A) $\frac{5}{8}$ (B) $\frac{1}{2}$ (C) $\frac{3}{8}$ (D) $\frac{3}{4}$
85. Which fraction is closest to 1?
(A) $\frac{2}{3}$ (B) $\frac{5}{6}$ (C) $\frac{3}{4}$ (D) $\frac{7}{8}$
86. A shirt costs \$40 and is $\frac{1}{4}$ off. What's the sale price?
(A) \$10 (B) \$30 (C) \$20 (D) \$35

Write the answer

87. If $\frac{2}{5}$ of 30 students wear glasses, how many is that?
Answer: _____

88. A 20 sq meter garden is $\frac{3}{4}$ flowers. How many sq meters are vegetables?

Answer: _____

89. You have $\frac{2}{3}$ gallon of paint and use $\frac{1}{4}$ of it. How much did you use?

Answer: _____

90. Walking takes $\frac{3}{4}$ hour. After $\frac{1}{2}$ hour, what fraction is complete?

Answer: _____

Match each question to its answer

1. 240 students, $\frac{5}{8}$ do activities. How many do NOT? →

2. You need $2\frac{1}{3}$ cups sugar but have $1\frac{3}{4}$. How much more? →

3. A tank at $\frac{2}{3}$ full drops to $\frac{3}{8}$. What fraction was used? →

4. Fabric is \$12/yard. You need $\frac{2}{3}$ yard. Cost? →

5. Three friends split \$75: first pays $\frac{1}{3}$, second $\frac{2}{5}$. Third pays? →

(A) $\frac{7}{24}$

(B) \$8

(C) \$20

(D) $\frac{7}{12}$ cup

(E) 90 students

10. Mathematics

Circle the correct answer

91. What is $\frac{3}{4} + \frac{5}{6}$?

(A) $\frac{15}{24}$, based on the standard mathematical approach for this type of problem
(B) $\frac{8}{10}$, which follows from applying the basic formula to the given values (C) $\frac{19}{12}$
or $1\frac{7}{12}$ (D) $\frac{2}{3}$, which is what you get when you apply the distributive property here

92. What is $\frac{7}{8} - \frac{2}{3}$?

(A) $\frac{5}{24}$ (B) $\frac{5}{5}$ (C) $\frac{3}{8}$ (D) $\frac{1}{2}$

93. What is $\frac{2}{3} \times \frac{4}{5}$?

(A) $\frac{6}{15}$ (B) $\frac{8}{10}$ (C) $\frac{8}{15}$ (D) $\frac{6}{8}$

94. What is $\frac{3}{4} \div \frac{1}{2}$?

(A) $\frac{3}{2}$ or $1\frac{1}{2}$ (B) $\frac{1}{4}$, based on the standard mathematical approach for this type of problem (C) $\frac{2}{3}$, which follows from applying the basic formula to the given values
(D) $\frac{3}{8}$, since this is how the operation works with these particular numbers

95. Convert $2\frac{3}{5}$ to an improper fraction.

(A) $\frac{13}{5}$ (B) $\frac{8}{5}$ (C) $\frac{11}{5}$ (D) $\frac{6}{5}$

96. What is the reciprocal of $\frac{5}{8}$?

(A) $\frac{8}{5}$ (B) $\frac{8}{1}$ (C) $\frac{5}{8}$ (D) $\frac{1}{8}$

Write the answer

97. Simplify: $3\frac{1}{4} + 2\frac{2}{3}$

Answer: _____

98. What is $4\frac{1}{2} - 1\frac{3}{4}$?

Answer: _____

99. Calculate: $\frac{2}{3}$ of $1\frac{1}{2}$

Answer: _____

100. If $\frac{3}{8}$ of a number is 24, what is the number?

Answer: _____

Match each question to its answer

1. A rope is $5\frac{1}{3}$ yards. You cut off $2\frac{5}{6}$ yards. How much is left? →

2. You need to triple a recipe that calls for $\frac{2}{3}$ cup milk. How much milk? →

3. What is $(\frac{1}{2} + \frac{1}{3}) \times \frac{3}{5}$? →

4. Divide $3\frac{1}{3}$ by $\frac{2}{3}$. →

5. A pool fills at $\frac{1}{4}$ per hour. A second hose fills at $\frac{1}{6}$ per hour. Together, how long to fill? →

(A) 2 cups

(B) $\frac{1}{2}$

(C) $2\frac{1}{2}$ yards

(D) 5

(E) $2\frac{2}{5}$ hours

11. Equivalent Fractions

Circle the correct answer

101. What percent of a meter is 0.4 meters?

(A) 0.4% (B) 40% (C) 400% (D) 4%

102. Which of these fractions is greater than 1 whole?

(A) $5/5$ (B) $1/8$ (C) $3/4$ (D) $7/5$

103. How do you find an equivalent fraction by multiplying?

(A) Add the same number to both (B) Multiply the numerator by the denominator
(C) Multiply only the numerator (D) Multiply both the numerator and denominator by the same number

104. Three friends each ate part of an identical sandwich. Maria ate $2/5$, Ben ate $3/10$, and Carla ate $7/20$. Who ate the most?

(A) They all ate the same amount (B) Ben, because $3/10$ has the smallest denominator
(C) Carla, because 20 is the largest denominator (D) Maria, because $2/5 = 8/20$, which is greater than $7/20$ and $6/20$

105. What is $1/2 + 1/3 + 1/6$?

(A) 1 (B) $5/6$ (C) $3/6$ (D) $3/11$

106. Use the area model to explain $1/3 \times 1/4$.

(A) Draw a rectangle, divide horizontally into 3 rows and vertically into 4 columns — the overlap of 1 row and 1 column is $1/12$ of the whole (B) Add $1/3 + 1/4 = 7/12$, which is the most common explanation for this phenomenon (C) Multiply $3 \times 4 = 12$, so the answer is 12, and this principle applies across similar situations (D) The area model doesn't work for fractions, as this is what research and standard practice suggests

Write the answer

107. A student sets up the proportion $3/4 = 12/x$ and gets $x = 9$ by dividing 12 by 4 and multiplying by 3. Is this correct?

Answer: _____

108. Subtract: $3\frac{5}{8} - 1\frac{3}{8}$

Answer: _____

109. Which fraction represents one whole?

Answer: _____

110. Find the missing number: $?/20 = 3/5$

Answer: _____

Match each question to its answer

1. Which is greater: $3/5$ or $2/3$? →

2. Jada walks $3/4$ mile to school and then $2/5$ mile to the library. How far did she walk in total? →

3. What is $2\frac{1}{3} \times 1\frac{1}{2}$? →

4. Two similar triangles have sides in the ratio 2:5. If the smaller triangle has a side of 6 cm, what is the corresponding side of the larger triangle? →
5. Convert $\frac{2}{3}$ to a decimal. Is it terminating or repeating? →

(A) $\frac{2}{3}$, because $\frac{2}{3} = \frac{10}{15}$ while $\frac{3}{5} = \frac{9}{15}$
(B) $3\frac{1}{2}$
(C) 15 cm
(D) 0.666... (repeating)
(E) $1\frac{3}{20}$ miles

12. Equivalent Fractions

Circle the correct answer

111. Add: $1\frac{2}{5} + 2\frac{1}{5}$
(A) $3\frac{3}{5}$ (B) $4\frac{3}{5}$ (C) $3\frac{3}{10}$ (D) $3\frac{1}{5}$
112. What fraction of a pizza is left if you eat 3 out of 8 slices?
(A) $\frac{5}{8}$ (B) $\frac{5}{3}$ (C) $\frac{3}{5}$ (D) $\frac{3}{8}$
113. Two students disagree: one says $\frac{2}{3}$ of a pizza is more than $\frac{4}{6}$. Who is correct?
(A) Neither — $\frac{2}{3}$ and $\frac{4}{6}$ are equivalent fractions representing the same amount
(B) The first student, because thirds are bigger than sixths (C) The second student, because 4 is bigger than 2 (D) Both are wrong because fractions can't represent pizza
114. Use cross multiplication to compare $\frac{2}{3}$ and $\frac{3}{5}$. Which is larger?
(A) $\frac{3}{5}$ (B) They are equal (C) $\frac{2}{3}$, because $2 \times 5 = 10 > 3 \times 3 = 9$ (D) $\frac{2}{3}$ only by a tiny amount
115. What is $\frac{5}{8} + \frac{3}{8}$?
(A) $\frac{15}{8}$ (B) $\frac{8}{16}$ (C) 1 or $\frac{8}{8}$ (D) $\frac{8}{8}$ only as a fraction, never as 1
116. What is $\frac{3}{4} \times 8$?
(A) 6 (B) $\frac{11}{4}$ (C) 12 (D) $\frac{3}{32}$

Write the answer

117. A student says 'If I double the recipe, the ratio changes.' Evaluate this claim.
Answer: _____
118. Which is an improper fraction?
Answer: _____

119. A fraction has a numerator of 5 and a denominator of 5. What type of number does this fraction represent?

Answer: _____

120. Simplify $12/18$ to its lowest terms.

Answer: _____

Match each question to its answer

1. A student says: 'I can always compare fractions by converting to decimals.' Is this a reliable strategy? →

2. What is $2\frac{1}{3} + 1\frac{2}{3}$? →

3. Without calculating, which product is greatest: $1/2 \times 1/2$, $1/3 \times 1/3$, or $1/4 \times 1/4$? →

4. Solve: $5/8 = 20/x$ →

5. Create a subtraction problem with mixed numbers that requires borrowing. Show the answer. →

(A) $x = 32$

(B) $1/2 \times 1/2 = 1/4$, which is the greatest

(C) It usually works, but some fractions like $1/3$ produce repeating decimals that are harder to compare precisely

(D) Example: $5\frac{1}{3} - 2\frac{2}{3} = 4\frac{4}{3} - 2\frac{2}{3} = 2\frac{2}{3}$

(E) 4

13. Equivalent Fractions

Circle the correct answer

121. Which is greater: $1/3$ or $1/5$?

(A) Cannot compare (B) $1/3$ (C) $1/5$ (D) They are equal

122. Maya says that $1/3$ is larger than $1/2$ because 3 is larger than 2. Is she correct?

(A) No, because a larger denominator means each part is smaller, so $1/3$ is less than $1/2$ (B) Yes, because 3 is a bigger number than 2 (C) Yes, because thirds come after halves when counting (D) No, because $1/3$ and $1/2$ are equal

123. Which of these fractions is already in simplest form?

(A) $7/12$ (B) $4/8$ (C) $9/12$ (D) $6/15$

124. What is $2/7 + 3/7$?

(A) $5/14$ (B) $5/7$ (C) $6/7$ (D) $2/3$

125. Simplify before multiplying: $9/14 \times 7/12$

(A) $16/26$ (B) $3/8$ (C) $1/4$ (D) $63/168$

126. A map scale is 1 inch = 5 miles. Two cities are 3.5 inches apart on the map. What is the actual distance?

(A) 17.5 miles (B) 35 miles (C) 8.5 miles (D) 5 miles

Write the answer

127. Find a fraction that is greater than $3/5$ but less than $4/5$.

Answer: _____

128. What does the denominator of a fraction tell you?

Answer: _____

129. Compare $4/9$ and $5/11$ without finding a common denominator. Which strategy works?

Answer: _____

130. What is $3/4 - 2/5$?

Answer: _____

Match each question to its answer

1. A class has 12 boys and 18 girls. What is the ratio of boys to total students? →

2. A recipe calls for $2/3$ cup of sugar. You only have a $1/6$ -cup measuring scoop. How many scoops do you need? →

3. How can you quickly tell that $11/20$ is greater than $1/2$ without converting to a common denominator? →

4. Estimate: Is $5/8 + 7/12$ closer to 1 or closer to $1\frac{1}{2}$? →

5. What is $1/2 \times 6$? →

(A) 12:30 or 2:5

(B) 4 scoops, because $2/3 = 4/6$

(C) Because half of 20 is 10, and $11 > 10$, so $11/20 > 10/20 = 1/2$

(D) 3

(E) Closer to 1, because $5/8$ is about 0.6 and $7/12$ is about 0.6, giving about 1.2

14. Equivalent Fractions

Circle the correct answer

131. Which method is LEAST efficient for comparing $\frac{1}{3}$ and $\frac{1}{4}$?

(A) Using the benchmark $\frac{1}{2}$ (B) Reasoning about piece size (C) Converting both to 48ths (D) Finding LCD (twelfths)

132. Find the missing number: $\frac{2}{5} = \frac{?}{20}$

(A) 12 (B) 10 (C) 4 (D) 8

133. Which fraction is greater than $\frac{1}{2}$ but less than $\frac{3}{4}$?

(A) $\frac{1}{3}$ (B) $\frac{3}{8}$ (C) $\frac{5}{8}$ (D) $\frac{7}{8}$

134. What is $\frac{5}{9} + \frac{7}{12}$? Give your answer in simplest form.

(A) $\frac{35}{108}$ (B) $1\frac{1}{3}$ (C) $\frac{41}{36}$ or $1\frac{5}{36}$ (D) $\frac{12}{21}$

135. Simplify before multiplying: $\frac{4}{9} \times \frac{3}{8}$

(A) $\frac{12}{17}$, which follows from applying the basic formula to the given values (B) $\frac{12}{72}$, according to the standard procedure for solving this kind of equation (C) $\frac{1}{6}$ — cancel the 4 and 8 (divide by 4) and 3 and 9 (divide by 3) to get $\frac{1}{3} \times \frac{1}{2}$ (D) $\frac{4}{72}$, which is what you get when you apply the distributive property here

136. A table shows: 2 hours $\rightarrow$ 90 miles, 4 hours $\rightarrow$ 180 miles, 6 hours $\rightarrow$ 270 miles. Is this proportional?

(A) Yes; because the difference is always 90 (B) No; 6 is not double 4 (C) Yes; the ratio miles/hours = 45 is constant (D) No; the numbers keep changing

Write the answer

137. What is $\frac{3}{5} \times \frac{5}{7}$?

Answer: _____

138. Are $\frac{3}{4}$ and $\frac{9}{12}$ equivalent? How can you check?

Answer: _____

139. What is $\frac{1}{4} + \frac{2}{4}$?

Answer: _____

140. A map has a scale where 1 inch represents $\frac{3}{4}$ mile. If two cities are $6\frac{2}{3}$ inches apart on the map, what is the actual distance?

Answer: _____

Match each question to its answer

1. Calculate $\frac{7}{10} \times \frac{5}{14}$. Simplify by canceling first. $\rightarrow$

2. A recipe calls for $\frac{2}{3}$ cup of sugar. You only have a $\frac{1}{3}$ cup measuring cup. How many scoops do you need? $\rightarrow$

3. If you simplify $\frac{15}{25}$, what do you get? Explain your process. $\rightarrow$

4. Solve and simplify: $\frac{3}{4} + \frac{5}{6} - \frac{1}{3}$ $\rightarrow$

5. Write the ratio 6 to 9 in simplest form. →

- (A) $1\frac{1}{4}$
 - (B) $\frac{1}{4}$
 - (C) 2 scoops
 - (D) 2:3
 - (E) $\frac{3}{5}$ — divide both by their GCF of 5
-

15. Equivalent Fractions

Circle the correct answer

141. What is $\frac{3}{7} + \frac{3}{7}$?

- (A) $\frac{6}{14}$ (B) $\frac{3}{7}$ (C) $\frac{6}{7}$ (D) $\frac{9}{7}$

142. A student claims that $\frac{3}{4}$ and $\frac{9}{16}$ are equivalent because $3 \times 3 = 9$ and $4 \times 4 = 16$. What mistake did the student make?

(A) The student should have added instead of multiplied (B) The student multiplied the numerator by 3 and the denominator by 4; both must be multiplied by the same number (C) The student should have divided instead of multiplied (D) The fractions are actually equivalent and the student made no mistake

143. A garden is $\frac{3}{4}$ acre. You plant flowers in $\frac{2}{3}$ of the garden. How much land has flowers?

- (A) $\frac{3}{4}$ acre (B) $\frac{5}{7}$ acre (C) $\frac{2}{3}$ acre (D) $\frac{1}{2}$ acre

144. If you run $\frac{3}{4}$ of a mile each day for 5 days, how far do you run in total?

- (A) $5\frac{3}{4}$ miles (B) $3\frac{3}{4}$ miles (C) $\frac{3}{20}$ mile (D) $\frac{15}{4}$ miles

145. How can you express the whole number 3 as a fraction with a denominator of 4?

- (A) $\frac{7}{4}$ (B) $\frac{3}{4}$ (C) $\frac{4}{3}$ (D) $\frac{12}{4}$

146. Which fraction is closest to 1: $\frac{7}{8}$, $\frac{4}{5}$, or $\frac{9}{10}$?

(A) They are all equally close (B) $\frac{7}{8}$, since this is how the operation works with these particular numbers (C) $\frac{9}{10}$, because it is only $\frac{1}{10}$ away from 1 (D) $\frac{4}{5}$, according to the standard procedure for solving this kind of equation

Write the answer

147. If the ratio of red to blue marbles is 3:7, and there are 21 blue marbles, how many red marbles are there?

Answer: _____

148. What number should replace the question mark? $5/? = 10/16$

Answer: _____

149. Why is $1/2$ called a 'benchmark fraction'?

Answer: _____

150. Which symbol correctly completes: $4/9$ _ $5/12$?

Answer: _____

Match each question to its answer

1. Why is it wrong to add fractions by adding both the numerators and the denominators (like $1/3 + 1/4 = 2/7$)? →

2. What is $2/3 \times 4/5$? →

3. What is the unit rate if you earn \$45 in 5 hours? →

4. What is $5/6 - 2/9$? →

5. Is $5/5$ the same as 1? Explain your reasoning. →

(A) Yes, because when the numerator equals the denominator, all parts are included, making one whole

(B) \$9 per hour

(C) $8/15$

(D) $11/18$

(E) Because the denominators represent the size of each piece, and adding them changes what size the pieces are

16. Equivalent Fractions

Circle the correct answer

151. You eat $1/3$ of a pizza and your friend eats $1/4$. What fraction of the pizza was eaten in total?

(A) $2/7$ (B) $1/7$ (C) $7/12$ (D) $2/12$

152. Which fraction represents exactly one whole?

(A) $8/1$ (B) $0/8$ (C) $1/8$ (D) $8/8$

153. Simplify the fraction $15/25$.

(A) $3/5$ (B) $1/5$ (C) $5/5$ (D) $5/10$

154. What is $2/3 + 1/4$?

(A) $3/12$ (B) $3/7$ (C) $11/12$ (D) $8/12$

155. A student claims multiplying always makes numbers bigger. Give a counterexample using fractions.

(A) $1/2 \times 1/2 = 1/4$, which is smaller than both $1/2$ values — multiplying by a fraction less than 1 makes things smaller (B) Fractions don't count as real numbers, as this directly follows from the underlying principles (C) $2 \times 3 = 6$ proves they're right, which is why this approach is recommended by experts (D) There is no counterexample, which is why this approach is recommended by experts

156. Which fraction equals $2/5$?

(A) $2/10$ (B) $4/10$ (C) $4/5$ (D) $3/5$

Write the answer

157. What is the simplest form of $6/8$?

Answer: _____

158. Why is finding a common denominator necessary when adding fractions with different denominators?

Answer: _____

159. A teacher asks students to find an equivalent fraction for $7/10$ with a denominator of 30. One student writes $21/30$ and another writes $14/30$. Which student is correct and why?

Answer: _____

160. A rectangle is divided into 5 equal parts, and 3 parts are shaded. What fraction of the rectangle is NOT shaded?

Answer: _____

Match each question to its answer

1. Find the missing number: $2/5 = ?/15 \rightarrow$

2. Order these fractions from least to greatest: $1/2, 3/8, 7/8 \rightarrow$

3. Simplify before multiplying: $5/8 \times 4/15 \rightarrow$

4. The ratio of boys to girls at camp is 3:4. If 12 more girls join and the ratio becomes 3:5, how many boys are there? $\rightarrow$

5. What is $5/6 - 1/2$? $\rightarrow$

(A) 6

(B) 36

(C) $3/8, 1/2, 7/8$

(D) $1/3$

(E) $1/6$

Riddle & Joke Break

Guess the answer, then check the key!

161. I'm always part of something, never the whole thing. I have a top and a bottom separated by a line. What am I?

162. I look different from my friend, but we mark the same spot on the number line. What are we?

163. When you multiply me by my reciprocal, you always get 1. What am I?

164. I'm bigger on top than on the bottom, and I'm always greater than or equal to 1. What kind of fraction am I?

165. I have a whole number friend standing next to a fraction friend. Together we make one value. What am I?

166. A recipe calls for $\frac{2}{3}$ cup of sugar. You want to make half the recipe. How much sugar do you need?

167. I split a candy bar into 8 equal pieces and eat 3. My friend splits an identical candy bar into 4 equal pieces and eats 2. Who ate more?

168. You have $\frac{3}{5}$ of a pizza. Your sibling eats $\frac{1}{5}$ of the same pizza. What fraction is left?

169. Why did the fraction go to the doctor?

170. Why should you never argue with a denominator?

171. Why did the numerator break up with the denominator?

172. What did $\frac{1}{2}$ say to $\frac{2}{4}$?

173. Why did the decimal point get promoted?

174. Why was the mixed number always so confident?

Fun Facts

- Did you know? The word "fraction" comes from the Latin word "fractio," which means "to break." Fractions literally represent broken pieces of a whole!
- Did you know? Ancient Egyptians used only unit fractions (fractions with 1 on top) over 3,500 years ago. To write $\frac{2}{5}$, they would write $\frac{1}{3} + \frac{1}{15}$ instead!
- Did you know? The fraction bar (the line between numerator and denominator)

was invented by an Arab mathematician named al-Hassar around the 12th century!

- Did you know? You use fractions every time you read a clock! When someone says "quarter past" or "half past," they mean $\frac{1}{4}$ or $\frac{1}{2}$ of an hour.
 - Did you know? Musicians use fractions constantly -- a whole note gets 4 beats, a half note gets 2, a quarter note gets 1, and an eighth note gets $\frac{1}{2}$ a beat!
 - Did you know? The number pi (3.14159...) cannot be written as an exact fraction of two whole numbers. That's what makes it "irrational" -- it goes on forever without repeating!
 - Did you know? When you split a recipe in half, you're dividing every fraction in it by 2. A recipe calling for $\frac{3}{4}$ cup becomes $\frac{3}{8}$ cup -- you're doing fraction math every time you cook!
 - Did you know? The Babylonians used a base-60 number system over 4,000 years ago. That's why we have 60 minutes in an hour and 360 degrees in a circle -- those are fractions of 60!
-

Answer Key

1. B — 3
2. B — How many equal parts the whole is divided into
3. D — 1
4. C — $\frac{2}{6}$
5. B — $\frac{7}{5}$
6. B — Three-fourths of the way from 0 to 1
7. $\frac{2}{5}$
8. $\frac{8}{8}$
9. 6
10. $\frac{1}{8}$, $\frac{1}{4}$, $\frac{1}{2}$
Matching (Fraction Basics): 1→B, 2→E, 3→D, 4→A, 5→C
11. A — $\frac{3}{6}$
12. A — Multiply or divide both the numerator and denominator by the same nonzero number
13. A — $\frac{3}{4}$

14. B — 6
15. B — $\frac{2}{3}$ and $\frac{4}{9}$
16. A — $\frac{2}{3}$
17. You both ate the same amount because $\frac{4}{8} = \frac{2}{4} = \frac{1}{2}$
18. 12
19. 8
20. Infinitely many, because you can keep multiplying numerator and denominator by any number
Matching (Equivalent Fractions): $1 \rightarrow C$, $2 \rightarrow B$, $3 \rightarrow A$, $4 \rightarrow E$, $5 \rightarrow D$
21. A — $\frac{2}{3}$, because $\frac{2}{3} = \frac{10}{15}$ while $\frac{3}{5} = \frac{9}{15}$
22. B — $\frac{4}{7}$, because $\frac{4}{7} = 0.571\ldots$ which is closest to 0.5
23. B — $\frac{7}{12}$, $\frac{3}{4}$, $\frac{5}{6}$
24. C — Because $\frac{3}{4} = \frac{6}{8}$, and $\frac{5}{8} < \frac{6}{8}$
25. B — $>$, because $\frac{4}{9} = \frac{16}{36}$ and $\frac{5}{12} = \frac{15}{36}$
26. D — $\frac{5}{12}$
27. Jordan, because $\frac{7}{8} = \frac{21}{24}$ while $\frac{5}{6} = \frac{20}{24}$
28. $\frac{5}{8}$
29. $\frac{3}{7} > \frac{5}{11}$, because $3 \times 11 = 33 > 7 \times 5 = 35$ is false; actually $33 < 35$, so $\frac{3}{7} < \frac{5}{11}$
30. Find the LCD (30) and compare: $\frac{7}{10} = \frac{21}{30}$ and $\frac{2}{3} = \frac{20}{30}$
Matching (Comparing Fractions): $1 \rightarrow C$, $2 \rightarrow E$, $3 \rightarrow A$, $4 \rightarrow D$, $5 \rightarrow B$
31. A — $\frac{3}{4}$
32. D — $\frac{5}{6}$
33. A — $\frac{5}{12}$
34. D — 1 or $\frac{8}{8}$
35. D — 1
36. A — $\frac{3}{10}$
37. $3\frac{7}{12}$
38. $1\frac{5}{12}$

39. $1\frac{3}{20}$ miles

40. $\frac{7}{12}$ yard

Matching (Adding and Subtracting Fractions): $1 \rightarrow C$, $2 \rightarrow A$, $3 \rightarrow D$, $4 \rightarrow E$, $5 \rightarrow B$

41. $A - \frac{8}{15}$

42. $B - 6$

43. $C -$ Less than the original number

44. $A - \frac{3}{10}$ square mile

45. $D - \frac{1}{6}$

46. $D - 3\frac{1}{2}$

47. $\frac{1}{2}$ cup

48. $\frac{3}{5} \times \frac{2}{4} = \frac{6}{20} = \frac{3}{10}$

49. $\frac{1}{2} \times \frac{1}{2} = \frac{1}{4}$, which is the greatest

50. $3\frac{3}{4}$ gallons

Matching (Multiplying Fractions): $1 \rightarrow B$, $2 \rightarrow D$, $3 \rightarrow E$, $4 \rightarrow A$, $5 \rightarrow C$

51. $D - \frac{3}{2}$

52. $C - 1\frac{3}{4}$

53. $C - \frac{13}{5}$

54. $D - 3\frac{2}{3}$

55. $D - 2\frac{3}{4} = \frac{(2 \times 4 + 3)}{4} = \frac{11}{4}$, not $\frac{5}{4}$

56. $A - 2\frac{5}{6}$

57. Less than 2

58. $\frac{7}{3}$

59. $\frac{14}{3}$

60. They added $3+2=5$ instead of $3 \times 7 + 2 = 23$; answer is $\frac{23}{7}$

Matching (fractions): $1 \rightarrow B$, $2 \rightarrow D$, $3 \rightarrow E$, $4 \rightarrow A$, $5 \rightarrow C$

61. $A - 0.5$

62. $D - \frac{1}{2}$

63. $B - 75\%$

64. A — $\frac{1}{4}$

65. D — 0.35

66. B — $\frac{3}{5}$

67. They moved the decimal 1 place right instead of 2 places left

68. 0.125

69. 0.666... (repeating)

70. 40%

Matching (fractions): $1 \rightarrow B$, $2 \rightarrow D$, $3 \rightarrow E$, $4 \rightarrow A$, $5 \rightarrow C$

71. D — 3:5

72. A — 2:3

73. A — 2:3

74. A — \$9 per hour

75. D — 12:30 or 2:5

76. A — They represent the same comparison when simplified

77. Yes, both simplify to 3:5

78. 9

79. \$0.75 per juice

80. 30 miles per gallon

Matching (ratios): $1 \rightarrow A$, $2 \rightarrow E$, $3 \rightarrow D$, $4 \rightarrow C$, $5 \rightarrow B$

81. B — $\frac{1}{3}$

82. D — $\frac{3}{8}$ cup

83. C — $\frac{2}{3}$

84. A — $\frac{5}{8}$

85. D — $\frac{7}{8}$

86. B — \$30

87. 12 students

88. 5 sq meters

89. $\frac{1}{6}$ gallon

90. $\frac{2}{3}$

Matching (Mathematics): $1 \rightarrow E, 2 \rightarrow D, 3 \rightarrow A, 4 \rightarrow B, 5 \rightarrow C$

91. C — $\frac{19}{12}$ or $1\frac{7}{12}$

92. A — $\frac{5}{24}$

93. C — $\frac{8}{15}$

94. A — $\frac{3}{2}$ or $1\frac{1}{2}$

95. A — $\frac{13}{5}$

96. A — $\frac{8}{5}$

97. $5\frac{11}{12}$

98. $2\frac{3}{4}$

99. 1

100. 64

Matching (Mathematics): $1 \rightarrow C, 2 \rightarrow A, 3 \rightarrow B, 4 \rightarrow D, 5 \rightarrow E$

101. B — 40%

102. D — $\frac{7}{5}$

103. D — Multiply both the numerator and denominator by the same number

104. D — Maria, because $\frac{2}{5} = \frac{8}{20}$, which is greater than $\frac{7}{20}$ and $\frac{6}{20}$

105. A — 1

106. A — Draw a rectangle, divide horizontally into 3 rows and vertically into 4 columns — the overlap of 1 row and 1 column is $\frac{1}{12}$ of the whole

107. No; cross multiply: $3x = 48$, so $x = 16$

108. $2\frac{2}{8}$ or $2\frac{1}{4}$

109. $\frac{4}{4}$

110. 12

Matching (Equivalent Fractions): $1 \rightarrow A, 2 \rightarrow E, 3 \rightarrow B, 4 \rightarrow C, 5 \rightarrow D$

111. A — $3\frac{3}{5}$

112. A — $\frac{5}{8}$

113. A — Neither — $\frac{2}{3}$ and $\frac{4}{6}$ are equivalent fractions representing the same amount

114. C — $2/3$, because $2 \times 5 = 10 > 3 \times 3 = 9$

115. C — 1 or $8/8$

116. A — 6

117. False; doubling all ingredients keeps the ratio the same

118. $7/3$

119. A whole number (it equals 1)

120. $2/3$

Matching (Equivalent Fractions): $1 \rightarrow C$, $2 \rightarrow E$, $3 \rightarrow B$, $4 \rightarrow A$, $5 \rightarrow D$

121. B — $1/3$

122. A — No, because a larger denominator means each part is smaller, so $1/3$ is less than $1/2$

123. A — $7/12$

124. B — $5/7$

125. B — $3/8$

126. A — 17.5 miles

127. $7/10$

128. How many equal parts the whole is divided into

129. Compare both to $1/2$: $4/9 < 1/2$ (since $4 < 4.5$) and $5/11 < 1/2$ (since $5 < 5.5$), but $4/9$ is closer, so we need cross-multiply: $4 \times 11 = 44$ vs $5 \times 9 = 45$, so $4/9 < 5/11$

130. $7/20$

Matching (Equivalent Fractions): $1 \rightarrow A$, $2 \rightarrow B$, $3 \rightarrow C$, $4 \rightarrow E$, $5 \rightarrow D$

131. C — Converting both to 48ths

132. D — 8

133. C — $5/8$

134. C — $41/36$ or $1 \frac{5}{36}$

135. C — $1/6$ — cancel the 4 and 8 (divide by 4) and 3 and 9 (divide by 3) to get $1/3 \times 1/2$

136. C — Yes; the ratio miles/hours = 45 is constant

137. $3/7$

138. Yes — multiply $\frac{3}{4}$ by $\frac{3}{3}$ to get $\frac{9}{12}$, or simplify $\frac{9}{12}$ by dividing by 3

139. $\frac{3}{4}$

140. 5 miles

Matching (Equivalent Fractions): $1 \rightarrow B$, $2 \rightarrow C$, $3 \rightarrow E$, $4 \rightarrow A$, $5 \rightarrow D$

141. C — $\frac{6}{7}$

142. B — The student multiplied the numerator by 3 and the denominator by 4; both must be multiplied by the same number

143. D — $\frac{1}{2}$ acre

144. B — $3\frac{3}{4}$ miles

145. D — $\frac{12}{4}$

146. C — $\frac{9}{10}$, because it is only $\frac{1}{10}$ away from 1

147. 9

148. 8

149. Because it is commonly used as a reference point when comparing other fractions

150. , because $\frac{4}{9} = \frac{16}{36}$ and $\frac{5}{12} = \frac{15}{36}$

Matching (Equivalent Fractions): $1 \rightarrow E$, $2 \rightarrow C$, $3 \rightarrow B$, $4 \rightarrow D$, $5 \rightarrow A$

151. C — $\frac{7}{12}$

152. D — $\frac{8}{8}$

153. A — $\frac{3}{5}$

154. C — $\frac{11}{12}$

155. A — $\frac{1}{2} \times \frac{1}{2} = \frac{1}{4}$, which is smaller than both $\frac{1}{2}$ values — multiplying by a fraction less than 1 makes things smaller

156. B — $\frac{4}{10}$

157. $\frac{3}{4}$

158. Because you can only combine pieces of the same size — different denominators mean different-sized pieces

159. $\frac{21}{30}$ is correct because $7 \times 3 = 21$ and $10 \times 3 = 30$

160. $\frac{2}{5}$

Matching (Equivalent Fractions): $1 \rightarrow A$, $2 \rightarrow C$, $3 \rightarrow E$, $4 \rightarrow B$, $5 \rightarrow D$

161. A fraction! The top is the numerator and the bottom is the denominator.

162. Equivalent fractions! For example, $\frac{1}{2}$ and $\frac{3}{6}$ are the same value.

163. Any fraction! Because a/b times b/a always equals 1.

164. An improper fraction! My numerator is larger than my denominator.

165. A mixed number! Like 2 and $\frac{3}{4}$.

166. $\frac{1}{3}$ cup! Half of $\frac{2}{3}$ is $\frac{2}{6}$, which simplifies to $\frac{1}{3}$.

167. Your friend! They ate $\frac{2}{4} = \frac{4}{8}$, while you only ate $\frac{3}{8}$.

168. $\frac{2}{5}$ of the pizza! Because $\frac{3}{5}$ minus $\frac{1}{5}$ equals $\frac{2}{5}$.

169. Because it was feeling improper!

170. Because it's always at the bottom of things!

171. Because it felt like it was being divided!

172. "Stop copying me -- we're equivalent and you know it!"

173. It knew how to move to the right place!

174. Because it was whole AND a fraction -- best of both worlds!

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