Pre-Algebra Workbook Solutions

Fractions

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FRACTIONS

■ 1. What is the numerator of the fraction $1/3$?

Solution:

1

■ 2. What is the denominator of the fraction $3/5$?

Solution:

5

■ 3. What is $40\,\%$ as a fraction?

Solution:

$\frac{40}{100}$ or $\frac{2}{5}$

■ 4. What is $75\,\%$ as a fraction?

Solution:

$\frac{75}{100}$ or $\frac{3}{4}$

■ 5. If a pizza is cut into 6 equal pieces and Ben eats 2 of them, what fraction of the pizza did Ben eat?

Solution:

$\frac{2}{6}$ or $\frac{1}{3}$

■ 6. Sharon gets her math test back and got a $70\,\%$. If there were 10 questions, how many questions did she get right?

Solution:

7

■ 7. Hazel is cleaning out her closet. She has 8 sweaters and 2 of them are blue. What fraction of her sweaters are blue?

Solution:

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

■ 8. Joey cuts a pie into 10 equal slices and eats 1 slice. What fraction of the pie did he eat?

Solution:

$\frac{1}{10}$

REDUCING FRACTIONS AND CANCELLATION

■ 1. Write $20/50$ as a reduced fraction.

Solution:

$$\frac{2}{5}$$

■ 2. Write $21/49$ as a reduced fraction.

Solution:

$$\frac{3}{7}$$

■ 3. Write $110/154$ as a reduced fraction.

Solution:

$$\frac{5}{7}$$

■ 4. Given the fraction of two numbers written as their prime factorizations,

$$\frac{2 \cdot 5 \cdot 7}{2 \cdot 5 \cdot 11}$$

What is the reduced fraction?

Solution:

$$\frac{7}{11}$$

■ 5. Given the fraction of two numbers written as their prime factorizations,

$$\frac{2 \cdot 5 \cdot 11}{3 \cdot 5 \cdot 11}$$

What is the reduced fraction?

Solution:

$$\frac{2}{3}$$

■ 6. Complete the statement.

When using prime factorization to reduce fractions, you're looking for the numbers in the numerator and denominator that are the _____ prime number.

Solution:

same

EQUIVALENT FRACTIONS AND REDUCING

■ 1. Write the fraction $4/5$ in terms of 20ths.

Solution:

$$\frac{16}{20}$$

■ 2. Write the fraction $2/3$ in terms of 9ths.

Solution:

$$\frac{6}{9}$$

■ 3. Write the fraction $1/7$ in terms of 49ths.

Solution:

$$\frac{7}{49}$$

■ 4. Complete the statement.

Equivalent fractions are fractions that are _____ in value.

Solution:

equal

■ 5. Are the fractions $2/16$ and $4/32$ equal? How do you know?

Solution:

Yes. To see if fractions are equal, both fractions need to be reduced. $2/16$ reduces to $1/8$. And $4/32$ reduces to $1/8$. Since they reduce to the same fractions, they are equivalent.

■ 6. Are the fractions $3/15$ and $6/36$ equal? How do you know?

Solution:

No. To see if fractions are equal, both fractions need to be reduced. $3/15$ reduces to $1/5$. And $6/36$ reduces to $1/6$. Since they reduce to different simplified fractions, they are not equivalent.

■ 7. Complete the statement.

Whenever the numerator and denominator of a fraction are equal, the fraction simplifies to _____.

Solution:

1

■ 8. Complete the equation.

$$\frac{2}{10} = \frac{4}{?}$$

Solution:

20

■ 9. Complete the equation.

$$\frac{5}{7} = \frac{?}{35}$$

Solution:

25

■ 10. Mia says that $2/5$ is equal to $4/7$ because you add $2 + 2 = 4$ and you add $5 + 2 = 7$. Since you add 2 to both, they are equivalent fractions. Max says that they are not equivalent fractions because you need to multiply to find equivalent fractions, so $2/5$ times 2 would be equal to $4/10$ not $4/7$. Who is correct? Why?

Solution:

Max is correct, because equivalent fractions are about reducing or scaling up fractions by multiplication, so that when you simplify all fractions they will reduce to the same fraction.

For this example, you can't reduce $4/7$, but you can reduce $4/10$ to $2/5$, so that's how we know they're equivalent fractions.

DIVISION OF ZERO

■ 1. Complete the statement.

The fraction $2/7$ means _____ divided by _____.

Solution:

2, 7

■ 2. Complete the statement.

The number _____ can never be the denominator of a fraction.

Solution:

0

■ 3. Complete the statement.

The fraction $0/8$ has a value of _____.

Solution:

0

■ 4. True or false? $5/0$ has a value of 0.

Solution:

False. It's impossible to divide by 0.

■ 5. True or false? 10 times 0 has a value of 0.

Solution:

True. The product of any number and 0 is 0.

■ 6. Complete the statement.

$8 \div 2 = 4$, $8 \div 4 = 2$, $2 \cdot 4 = 8$ and $4 \cdot$ _____ $= 8$

Solution:

2

■ 7. Complete the statement.

$6 \cdot 0 = 0$ and $0 \div 6 =$ _____.

Solution:

0

■ 8. Complete the statement of why you cannot divide by 0.

$7 \div 0$ means that that something times 0 has a value equal to 7. But there is nothing times 0 that will ever equal 7 because anything times 0 will always equal _____. Therefore, it's impossible to divide by 0.

Solution:

0

ADDING AND SUBTRACTING FRACTIONS

■ 1. Complete the statement.

When you're adding and subtracting fractions, you first have to find common _____.

Solution:

denominators

■ 2. Complete the statement.

When finding a common denominator, you have to find the _____ of the two numbers.

Solution:

LCM, or least common multiple

■ 3. Complete the statement.

When you add or subtract fractions, you'll add or subtract the numerators and the _____ will stay the same.

Solution:

denominators

■ 4. Solve.

$$\frac{1}{9}+\frac{3}{9}=$$

Solution:

$\frac{4}{9}$

■ 5. Solve.

$$\frac{3}{4}+\frac{1}{8}=$$

Solution:

$\frac{7}{8}$

■ 6. Solve.

$$\frac{7}{12} - \frac{2}{6} =$$

Solution:

$\frac{3}{12}$ or $\frac{1}{4}$

■ 7. Solve.

$$\frac{4}{11} - \frac{2}{11} =$$

Solution:

$\frac{2}{11}$

■ 8. Solve.

$$\frac{1}{16} + \frac{3}{4} + \frac{5}{8} =$$

Solution:

$$\frac{23}{16}$$

9. Solve.

$$\frac{7}{10} - \frac{1}{10} + \frac{2}{5} =$$

Solution:

$\frac{10}{10}$ or 1

10. Solve.

$$\frac{2}{15} + \frac{1}{5} - \frac{1}{30}$$

Solution:

$$\frac{9}{30}$$

MULTIPLYING AND DIVIDING FRACTIONS

■ 1. When you're dividing fractions, you need to flip the _____ fraction.

Solution:

second

■ 2. Solve.

$$\frac{3}{5} \cdot \frac{4}{6}$$

Solution:

$\frac{12}{30}$ or $\frac{2}{5}$

■ 3. Solve.

$$\frac{4}{7} \cdot \frac{2}{9}$$

Solution:

$$\frac{8}{63}$$

■ 4. Solve.

$$\frac{5}{8} \div \frac{1}{12}$$

Solution:

$$\frac{60}{8} \text{ or } \frac{15}{2}$$

■ 5. Solve.

$$\frac{2}{9} \div \frac{1}{15}$$

Solution:

$$\frac{30}{9} \text{ or } \frac{10}{3}$$

■ 6. Solve.

$$\frac{1}{10} \cdot \frac{2}{5} \div \frac{1}{4}$$

Solution:

$\frac{8}{50}$ or $\frac{4}{25}$

■ 7. Solve.

$$\frac{3}{5} \div \frac{1}{6} \cdot \frac{4}{9}$$

Solution:

$\frac{72}{45}$ or $\frac{8}{5}$

SIGNS OF FRACTIONS

■ 1. Every fraction has _____ positive or negative signs.

Solution:

3

■ 2. Is the statement true or false?

$\frac{-3}{4}$ is equivalent to $-\frac{3}{4}$.

Solution:

True.

■ 3. Is the statement true or false?

$-\frac{1}{6}$ is equivalent to $\frac{-6}{1}$.

Solution:

False.

■ 4. Is the statement true or false?

$-\frac{3}{4}$ is equivalent to $\frac{3}{-4}$.

Solution:

True.

■ 5. Solve.

$$-\frac{2}{7} \cdot \frac{1}{8} =$$

Solution:

$-\frac{2}{56}$ or $-\frac{1}{28}$

■ 6. Solve.

$$\frac{2}{11} \cdot -\frac{1}{4} =$$

Solution:

$$-\frac{2}{44} \text{ or } -\frac{1}{22}$$

■ 7. Solve.

$$-\frac{3}{20} \cdot -\frac{2}{13} =$$

Solution:

$$\frac{6}{260} \text{ or } \frac{3}{130}$$

■ 8. Solve.

$$-\frac{2}{3} \div \frac{3}{10} =$$

Solution:

$$-\frac{20}{9}$$

■ 9. Solve.

$$\frac{4}{7} \div -\frac{3}{11}$$

Solution:

$$-\frac{44}{21}$$

■ 10. Solve.

$$-\frac{5}{16} \div -\frac{1}{2}$$

Solution:

$\frac{10}{16}$ or $\frac{5}{8}$

■ 11. If the numerator and the denominator are both negative, the fraction will be _____.

Solution:

positive

RECIPROCALS

■ 1. A reciprocal is when you _____ the fraction.

Solution:

flip, or invert

■ 2. What is the reciprocal of $3/4$?

Solution:

$\frac{4}{3}$

■ 3. What is the reciprocal of $-1/2$?

Solution:

$-\frac{2}{1}$ or -2

■ 4. What is the reciprocal of 3?

Solution:

$\frac{1}{3}$

■ 5. What is the reciprocal of $-1/4$?

Solution:

$\frac{4}{1}$ or -4

■ 6. The only number that does not have a reciprocal is _____.

Solution:

0

■ 7. When you multiply two numbers together which are reciprocals of one another, the result is always _____.

Solution:

1

■ 8. The reciprocal of a negative fraction is _____.

Solution:

negative

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