Getting Ready for
Big Ideas MS Course 1

1. Multiplying Two-Digit and Three-Digit Numbers
2. Decimals
3. Adding and Subtracting Fractions
4. Multiplying Fractions
5. Equivalent Fractions
6. Ratios and Fractions of a Group
7. Prime and Composite Numbers

Multiplying Two-Digit and Three-Digit Numbers

Use a four-step process to multiply two-digit numbers. When multiplying by three-digit numbers, indent using zeros as placeholders.

Remember to write the dollar sign and decimal point in problems dealing with money.

Ex - 25×11

1.
$$\begin{array}{r} 25 \\ \times\ 11 \\ \hline 5 \end{array}$$

2.
$$\begin{array}{r} 25 \\ \times\ 11 \\ \hline 25 \end{array}$$

3.
$$\begin{array}{r} 25 \\ \times\ 11 \\ \hline 25 \\ +\ 250 \\ \hline \end{array}$$

4.
$$\begin{array}{r} 25 \\ \times\ 11 \\ \hline 25 \\ +\ 250 \\ \hline 275 \end{array}$$

Multiply.

1. 52×14

2. $\$0.85 \times 22$

3. 49×67

4. 36×24

5. 25×17

6. $\$0.72 \times 12$

7. 412×368

8. 308×367

9. 564×293

10. 347×310

11. $\$2.65 \times 690$

12. 260×208

13. $\$1.86 \times 201$

14. 750×547

Decimals

Adding/Subtracting Decimals: Use a vertical format to add or subtract decimals. Begin by lining up the decimal points and use zeros as place holders. Borrow as necessary.

Multiplying Decimals: Multiply decimals as you would whole numbers, then place the decimal point in the product. The number of decimal places is the sum of the number of decimal places in the factors.

Ex 1 – 0.283 + 0.54

$$\begin{array}{r} 0.283 \\ + 0.540 \\ \hline 0.823 \end{array}$$

Ex 2 – Find the product of 4.94 and 0.45

$$\begin{array}{r} 4.94 \\ \times 0.45 \\ \hline 2470 \\ 1976 \\ \hline 2.2230 \end{array}$$
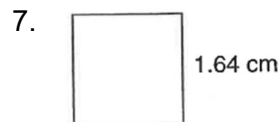
Find the sum or difference.

1. 3.4 + 0.91

2. 0.5 + 0.8

3. 3.6 + 4.7 + 1.4

4. 15.894 + 3.602 + 11.854

5. 1.7 – 0.49

6. 2 – 0.53

Find the perimeter of the square.

7.

1.64 cm

Find the product.

8. 1.6 x 0.9

10. 0.3 x 0.4 x 0.2

9. 0.24 x 0.13

Adding and Subtracting Fractions

A mixed number is the sum of a whole number and a fraction. An improper fraction is any fraction in which the numerator is greater than the denominator.

To add or subtract fractions, the fractions must have a common denominator.

Ex 1 – Write $1\frac{9}{10}$ as an improper fraction.

$$= \frac{1(10)+9}{10} = \frac{19}{10}$$

Ex 2 – Find the sum of $\frac{2}{5}$ and $\frac{3}{4}$

$\frac{2}{5} + \frac{3}{4}$	**Write the original problem**
$\frac{2(4)}{5(4)} + \frac{3(5)}{4(5)}$	**Get a common denominator**
$\frac{8}{20} + \frac{15}{20}$	**Multiply**
$\frac{23}{20} = 1\frac{3}{20}$	**Simplify**

1. Write $2\frac{1}{3}$ as an improper fraction

2. Write $3\frac{2}{5}$ as an improper fraction

3. Write $\frac{11}{3}$ as a mixed number

4. Write $\frac{14}{6}$ as a mixed number

Find the sum or difference.

5. $\frac{5}{7} + \frac{5}{7}$

6. $\frac{6}{9} + \frac{8}{9}$

7. $\frac{4}{6} - \frac{2}{6}$

8. $3 - \frac{2}{3}$

6

9. $5 - 1\frac{2}{5}$

11. $5\frac{2}{5} - 1\frac{3}{5}$

10. $10 - 8\frac{5}{6}$

12. $6\frac{3}{7} + 2\frac{6}{7}$

Multiplying Fractions

A mixed number is the sum of a whole number and a fraction. An improper fraction is any fraction in which the numerator is greater than the denominator.

To multiply fractions, multiply the numerators and multiply the denominators.

Ex 1 – Multiply $\frac{3}{4} \times \frac{4}{6}$

$$\frac{3}{4} \times \frac{4}{6} = \frac{3 \times 4}{4 \times 6} = \frac{12}{24} \div \frac{12}{12} = \frac{1}{2}$$

Ex 2 – What is one half of five sixths?

$$\frac{1}{2} \times \frac{5}{6} = \frac{5}{12}$$

Find the product.

1. $\frac{1}{4} \times \frac{3}{4}$

2. $\frac{6}{7} \times \frac{3}{5}$

3. $\frac{9}{10} \times \frac{1}{3}$

4. What is one third of four fifths?

5. What is three fourths of five sevenths?

6. What is two thirds of one fourth?

7. $\frac{4}{5} \times 3\frac{1}{2}$

Write the following quotients as mixed numbers.

8. $13 \div 5$

10. $53 \div 4$

9. $49 \div 8$

11. $68 \div 7$

Equivalent Fractions

When a number is multiplied by 1, the value of the number does not change. This is called the Identity Property of Multiplication. When a fraction is multiplied by any fraction name for 1, the result is an equivalent fraction.

To reduce fractions, divide by a fraction name for 1.

Ex 1 – $\frac{3}{4} \times \frac{2}{2} = \frac{6}{8}$

Ex 2 – $\frac{2}{3} \times \frac{4}{4} = \frac{8}{12}$

Ex 3 – Reduce $\frac{3}{6}$

$$\frac{3}{6} \div \frac{3}{3} = \frac{1}{2}$$

Find the fraction name for 1 used to make each equivalent fraction.

1. $\frac{4}{5} \times \frac{\square}{\square} = \frac{12}{15}$

2. $\frac{1}{3} \times \frac{\square}{\square} = \frac{3}{9}$

3. $\frac{5}{7} \times \frac{\square}{\square} = \frac{35}{49}$

4. $\frac{3}{4} \times \frac{\square}{\square} = \frac{18}{24}$

Find the numerator that completes each equivalent fraction.

5. $\frac{1}{5} \times \frac{\square}{\square} = \frac{\square}{30}$

6. $\frac{3}{8} \times \frac{\square}{\square} = \frac{\square}{24}$

7. $\frac{2}{7} \times \frac{\square}{\square} = \frac{\square}{28}$

8. $\frac{1}{4} \times \frac{\square}{\square} = \frac{\square}{16}$

Complete the following.

9. Write a fraction equal to $\frac{2}{3}$ that has a denominator of 12.

10. Write a fraction equal to $\frac{1}{2}$ that has a denominator of 12.

11. What is the sum of the answers from questions 9 and 10?

12. Reduce $\frac{9}{15}$ to its simplest form.

13. Reduce $\frac{4}{10}$ to its simplest form.

14. Reduce $4\frac{6}{18}$ to its simplest form.

Ratios and Fractions of a Group

A ratio is the relationship between two numbers, represented as a quotient.

Ex – Casey scored $\frac{2}{3}$ of the team's 48 points. How many points did she score?

$48 \div 3 = 16$ **Divide the total by the denominator**

$2 \times 16 = 32$ **Find the number of parts**

Casey scored 32 of the team's points.

Complete the following.

1. $\frac{1}{3}$ of 27 =

2. $\frac{4}{5}$ of 15 =

3. $\frac{5}{8}$ of 64 =

4. $\frac{3}{10}$ of 100 =

5. $\frac{3}{5}$ of the 30 students in the class sang in the choir. How many students sang in the choir?

6. How many eggs is $\frac{3}{4}$ of a dozen?

7. How many minutes is $\frac{2}{3}$ of an hour?

8. Five sixths of the 30 students walk to school. How many students walk to school?

Prime and Composite Numbers

A prime number has only two factors – itself and 1.
A composite number has more than two factors.
Prime factorization is writing a composite number
as a product of its prime factors.

Number	Factors	Type
1	1	
2	1, 2	prime
3	1, 3	prime
4	1, 2, 4	composite
5	1, 5	prime
6	1, 2, 3	composite
7	1, 7	prime
8	1, 2, 4, 8	composite

1. Four prime numbers are 11, 13, 17, and 19. What are the next four prime numbers?

2. Which counting number is not prime or composite?

List the prime factors for each number.

3. 17

6. 26

4. 76

7. 29

5. 47

8. 49

9. 43

10. 86