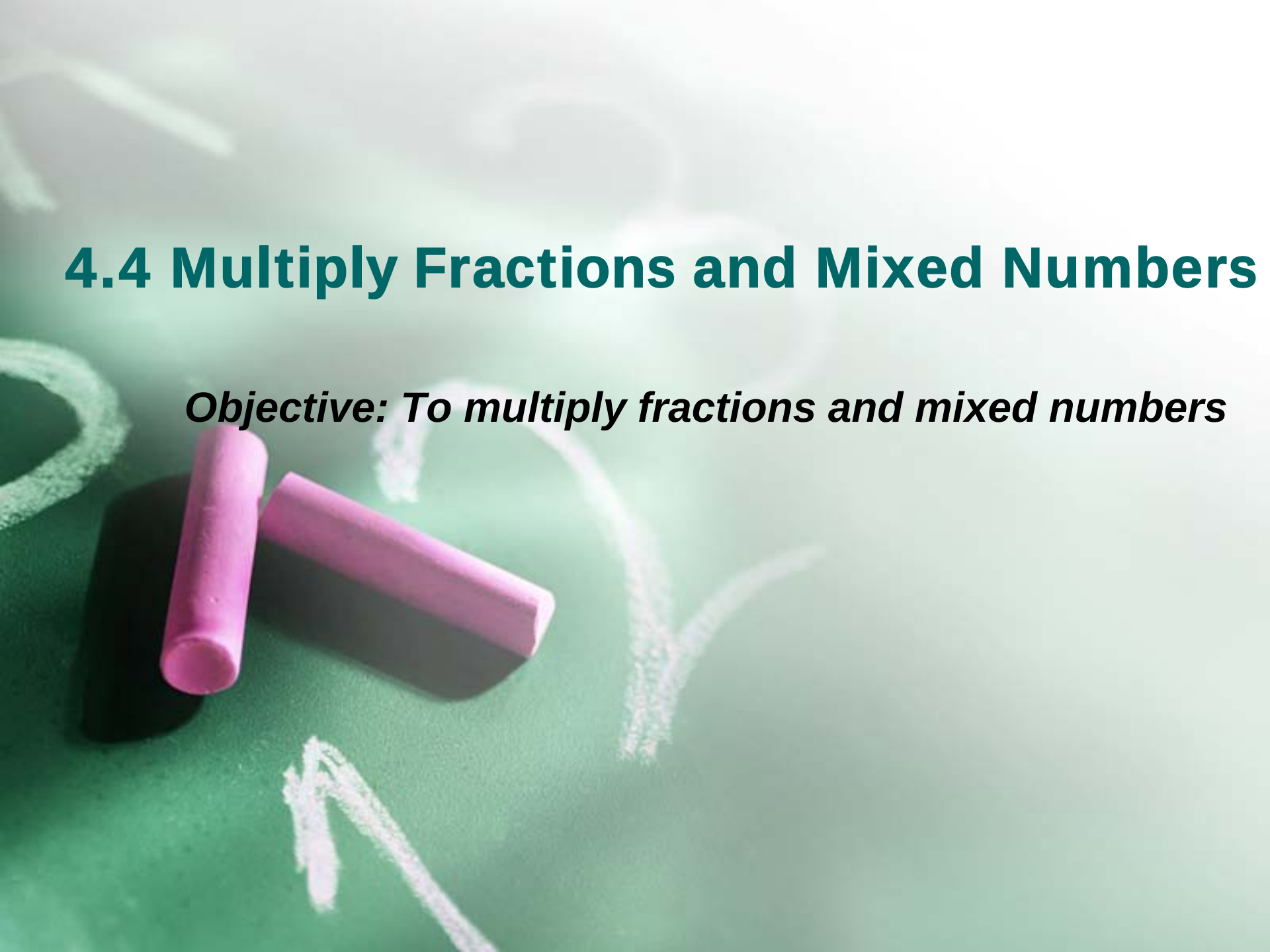

4.4 Multiply Fractions and Mixed Numbers

Objective: To multiply fractions and mixed numbers

Mixed Number – a number that has a whole number part and a fraction part

$$4\frac{5}{9} = 4 + \frac{5}{9}$$

Mixed Number = Whole Number + Fraction

Proper Fraction – For positive fractions, a number between 0 and 1

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

Improper Fraction – For positive fractions, a number greater than or equal to 1

Ex. $\frac{8}{7} or \frac{5}{5}$

To write a mixed number as an improper fraction:

Step 1: Multiply the whole number by the denominator in the fraction

Step 2: Add the numerator to this product

Step 3: Place this sum over the denominator

Ex: Write the mixed number as an improper fraction

1) $4\frac{5}{9}$

4 9=36

36+5=41

$$\frac{41}{9}$$

To write an improper fraction as a mixed number

Step 1: Divide the numerator by the denominator

Step 2: Write down the whole number

Step 3: Place any remainder over the denominator

Ex: Write the improper fraction as a mixed number

1) $\frac{64}{7}$

$9\ \frac{1}{7}$

$$\begin{array}{r} 9 \\ 7\overline{)64} \\ \underline{63} \\ 1 \end{array}$$

Area Models & Fraction Multiplication

Draw an area model to multiply

1) 38 • 26

988

	30	+	8
20	600		160
+			
6	180		48

2) 2 ¾ • 8 ½

$23\frac{3}{8}$

	2	+	¾
8	16		6
+			
½	1		3/8

To Multiply Fractions & Mixed Numbers:

Steps:

1. Convert the mixed number to an improper fraction
2. Multiply the numerators (top number)
3. Multiply the denominators (bottom number)
4. Simplify

Examples

1) $\frac{3}{5} \bullet \frac{1}{2} = \frac{3}{10}$

2) $\frac{2}{3} of \frac{3}{4}$

$\frac{2}{3} \bullet \frac{3}{4} = \frac{6}{12} = \frac{1}{2}$

3) $3 \bullet \frac{2}{5}$

$\frac{3}{1} \bullet \frac{2}{5} = \frac{6}{5} = 1\frac{1}{5}$

4) $2\frac{4}{5} \bullet 3\frac{1}{4}$

$\frac{14}{5} \bullet \frac{13}{4} = \frac{182}{20} = 9\frac{2}{20} = 9\frac{1}{10}$

5) $\frac{1}{2} \bullet \frac{2}{5} = \frac{1}{5}$

6) $1\frac{2}{3} \bullet 2\frac{2}{7} = 5\frac{5}{7}$

7) $2\frac{1}{4} \bullet 5\frac{2}{3} = 12\frac{3}{4}$

8) $6 \bullet \frac{3}{4} = 4\frac{1}{2}$