We've seen that a mixed number can be written as an improper fraction, and an improper fraction can be written as a mixed number. How do you go about changing one into the other?
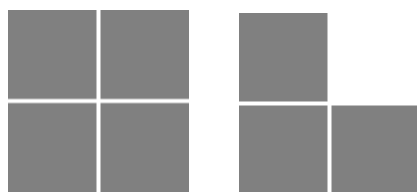
We'll start with converting (changing) mixed numbers to improper fractions.

Suppose we want to change the mixed number **1¾** to an improper fraction.

First let's draw a picture.

Here we have 1¾ large squares.
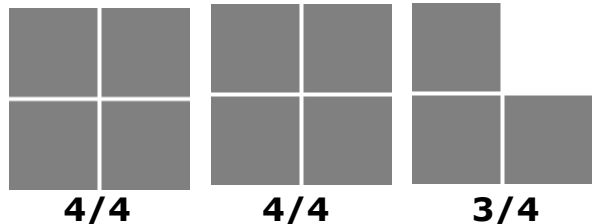
We start by dividing the 1 whole square into 4 fourths.

Now we count up the pieces. There are 7 pieces.

Each piece is ¼ of a square. So that's 7 x ¼ = 7/4 squares.

So, **1¾ = 7/4**.

Instead, what if had wanted to change **2¾** to an improper fraction? Then we would have drawn 2 whole squares, and cut each of them into fourths.

How many fourths do we have this time? 4 from each of the 2 whole squares plus 3 more.
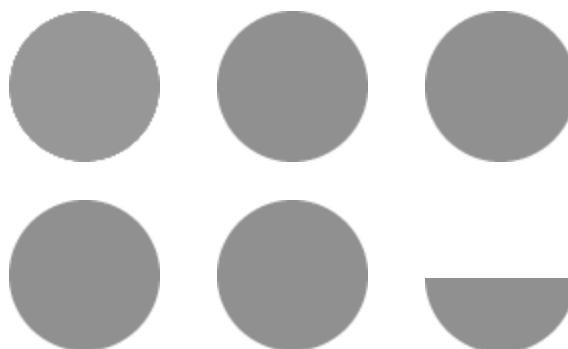
4/4   4/4   3/4

4/4 + 4/4 + 3/4 = 11/4,   or

(2 x 4/4) + 3/4 = 8/4 + 3/4 = 11/4.

2¾ = 11/4

1. Here are 5½ circles.

   Change 5½ to an improper fraction.

Now let's do one without the pictures.

Let's convert **3 ²/₅** to an improper fraction.

How? We'll change the 3 wholes into fifths and add on the 2/5.

Each whole is 5/5. So 3 wholes are 5/5 + 5/5 + 5/5 = (3 x 5/5) = 15/5.

Now we add on the 2/5 to the 15/5.   15/5 + 2/5 = 17/5.

Do you see what's going on?

The <u>denominator</u> (bottom) of your improper fraction will be the SAME as the <u>denominator</u> of the fractional part of the mixed number.

To get the <u>numerator of the improper fraction</u>, you multiply whole part of the mixed number by the denominator of the fractional part and add on the numerator of the fractional part.

Now, let's change $2\frac{5}{6}$ to an improper fraction.

① $2\frac{5}{6}$

↑ ↗

multiply these...

2 × 6

② $2\frac{5}{6}$ ← then add this to the product

2 × 6 + 5

③ 2 × 6 + 5 = 17

↗

this is your new numerator

You keep the same denominator. So . . . $2\frac{5}{6} = \frac{17}{6}$

2. Change the following mixed numbers to improper fractions:

   3 ²/₃   **4 ¼**   **2 ⁵/₈**