Factor by Grouping

Follow these steps each time, and you’ll get it.

Original Problem:

\[12xy - 8y + 21x - 14\]

1. First, underline the first two terms and underline the last two terms (grouping):

\[12xy - 8y + 21x - 14\]

2. Then factor out what is in common with each set:

\[4y(3x - 2) + 7(3x - 2)\]

(Sometimes there is nothing in common with a set. Just leave it as it is, then.)

3. Next, factor out what is in common with these whole areas:

\[4y(3x - 2) + 7(3x - 2)\]

a \((3x - 2)\) is in common with both…

\((3x - 2)(4y + 7)\)

We leave what’s left in \((\ )\). It is ok to write it as \( (4y + 7)(3x - 2) \) also.

4. You can always multiply the answer to check that it comes out as the original problem, and it is essential more than ever to do that when factoring.

Check your answer!!