

PreAlgebra
Skill-Builder #SMN-3
Multiplying Signed Mixed Numbers

Recall that when multiplying two numbers with same signs, the product will be positive.
 If the two numbers have different signs, the product will be negative.

This rule also applies when we multiply signed mixed numbers. After taking care of the signs, you should convert the mixed numbers to improper fractions, then multiply them as fractions and remember to always reduce your final answer to lowest terms. Usually, it is stated that you have to give your answer as a mixed number if possible.

Example 1

Multiply: $\left(-15\frac{2}{5}\right)\left(-3\frac{2}{11}\right)$

$$\left(-15\frac{2}{5}\right)\left(-3\frac{2}{11}\right) = +\left(\frac{15 \cdot 5 + 2}{5} \cdot \frac{3 \cdot 11 + 2}{11}\right) = +\frac{\cancel{77}^7}{\cancel{5}} \cdot \frac{\cancel{35}^7}{\cancel{11}} = \frac{49}{1} = 49$$

Both mixed numbers are negative (same sign!)
 so the product will be positive.

Answer: 49

Example 2

Multiply: $\left(10\frac{2}{15}\right)\left(-8\frac{3}{4}\right)$

$$\left(10\frac{2}{15}\right)\left(-8\frac{3}{4}\right) = -\left(\frac{10 \cdot 15 + 2}{15} \cdot \frac{8 \cdot 4 + 3}{4}\right) = -\left(\frac{\cancel{152}^{38}}{\cancel{15}_3} \cdot \frac{\cancel{35}^7}{\cancel{4}}\right) = -\frac{266}{3}$$

One mixed number is positive and the other is negative (different sign!)
 so the product will be negative.

Answer: $-88\frac{2}{3}$

convert
to
mixed
number

$$= -88\frac{2}{3}$$

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Multiply the following.

1. $\left(-5\frac{1}{4}\right)\left(-1\frac{3}{7}\right)$

2. $\left(-4\frac{1}{6}\right)\left(5\frac{1}{10}\right)$

3. $\left(10\frac{2}{5}\right)\left(3\frac{1}{13}\right)$

4. $\left(7\frac{2}{7}\right)\left(-8\frac{2}{3}\right)$

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Answers

1. $7\frac{1}{2}$

2. $-21\frac{1}{4}$

3. 32

4. $-63\frac{1}{7}$