

$-x -$
 $+x +$

3.4/3.5 - Multiplying/Dividing Rational Numbers

Same sign $\rightarrow (+)$ different sign $\rightarrow (-)$
 $-x +$
 $+x -$
sign

Recall that for multiplication and division:

- If there is an even number of negative signs (0, 2, 4, 6, etc.), the solution will be positive
- If there is an odd number of negative signs (1, 3, 5, etc.), the solution will be negative

When multiplying or dividing fractions, there is no need to create common denominators. You can, but you will have much more work to do simplifying your answer (lowest terms).

To multiply fractions:

- 1) Convert any mixed numbers to improper fractions.
- 2) Cross-cancel any common factors in the numerators and denominators (saves you work in step 4).
- 3) Multiply the numerators and multiply the denominators.
- 4) Be sure that your answer is fully simplified (lowest terms). If the answer is an improper fraction, convert it to a mixed number

Ex 1: Determine each product.

(a) $\left(-\frac{1}{1}\right)\left(-\frac{3}{4}\right)$
 $= \frac{3}{4}$

(b) $\left(2\frac{2}{3}\right)\left(-1\frac{5}{6}\right)$
 $= \frac{48}{3} \times \left(-\frac{11}{6}\right)$
 $= \frac{-44}{9}$ $= -4\frac{8}{9}$

(c) $(0.8)(-2.4)$ approximation
 $\approx 1 \times (-2)$
 $\approx (-2)$

$\begin{array}{r} -2.4 \\ \times 0.8 \\ \hline -1.92 \end{array}$

(d) $(-1.25)(-2.84)$
 + calculator
 $= 3.55$ $\approx (-1) \times (-3)$
 ≈ 3