

MATH SKILL INFORMATION PAGE

Algebra

For use with 2-3 through 2-6

DEALING WITH NEGATIVE SIGNS

A. When adding or subtracting:

- $- + - =$ a larger $-$
- $+ + + =$ a larger $+$
- If different signs, find the difference of the absolute values, and use the sign of the “larger.”
 - $84 - 112 = 84 + ^{-}112$ $|^{-}112|$ is 112, so $112 - 84 = 28$. Since the “larger” number was negative, the answer must be negative also. The answer is $^{-}28$.
 - Note that “switching signs” can greatly simplify a problem. -112 is really $^{+}112$. Follow this example: $-84 - 112 = -84 + ^{-}112$. Thus, you are adding two negatives, which means to add them as if they were positive, and then the answer must be negative.
 - Remember that two negative signs make a positive (or, as the textbook puts it, the inverse of the inverse of a rational number is the number itself). Example: $^{-}112$ is $^{+}112$. This can be very helpful in some problems, such as: $-84 - ^{-}112 = -84 + ^{+}112$. Now you can use the commutative property and switch the numbers (keeping the signs with the numbers), and you have $112 - 84$, with which you are more familiar.

B. When multiplying or dividing:

- Two positives make a positive.
- Two negatives make a positive.
- Different signs make a negative.

Special note: these only apply to pairs of numbers. If you have three numbers, do two of them first, then use the result with the third number.

Examples:

- $-5 \cdot 6 = -30$
- $-5 \cdot 6 \cdot 4 \cdot (-2) \cdot (-1) = -240$ Follow this example one step at a time:
 $-5 \cdot 6 \cdot 4 \cdot (-2) \cdot (-1) = -30 \cdot 4 \cdot (-2) \cdot (-1) = -120 \cdot (-2) \cdot (-1) = 240 \cdot (-1) = -240$

C. Negative signs and fractions:

A negative sign in a fraction can go in any of three positions; all are correct. However, math “convention” (done the same way by everyone, so that everyone understands each other in math), says to do it the first way only, except in certain cases where it helps you better solve a problem (such as graphing and slope, when you need to use rise and run as separate numbers).

$$-\frac{x}{y} = \frac{-x}{y} = \frac{x}{-y}$$