1.3 Arithmetic and Numbers

Operations with Integers

Adding integers:

1. If the signs are the same, add the absolute values of the numbers and keep the same sign.

   Examples: \[27 + 55 = 82\]
   \[-13 + (-28) = -41\]

2. If the signs are different, subtract the absolute values of the numbers and keep the sign the number with the largest absolute value.

   Examples: \[-18 + 45 = 27\] (since \[45 - 18 = 27\] and the 45 term is positive)
   \[-35 + 14 = -21\] (since \[35 - 14 = 21\] and the 35 term is negative)

Subtracting integers:

To subtract integers, we change the problem to an addition problem and follow the rules above. To do this, we add the opposite of the number being subtracted.

Examples: \[-48 - 32 = -48 + (-32) = -80\] (this is -48 minus positive 32, so we change it to -48 plus negative 32.

\[57 - (-15) = 57 + (15) = 72\]

Multiplying and dividing integers:

1. To multiply or divide two numbers with the same sign, multiply or divide their absolute values; the result is positive.

   Examples: \[-27 \times (-5) = 135\]
   \[-56 \div (-8) = 7\]

2. To multiply or divide two numbers with different signs, multiply or divide their absolute values; the result is negative.

   Examples: \[-48 \div 3 = -16\]
   \[25 \cdot (-17) = -425\]