**Common Mathematics Student Misconceptions**

Find the mistake or misconception, and fix the mistake/offer suggestions to correct the misconception. A few problems are given as examples.

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| #1  2 1/3 × 4 ½ = 8 1/6 | Example 1:  10 × 6 ÷ 2 × 5  = 60 ÷ 10 = 6  This is an order of operation problem: do multiplication and division from left to right.  10 × 6 ÷ 2 × 5  = 60 ÷ 2 × 5 = 30 × 5 = 150 | Example 2:  (3 + 5)2 = 32 + 52  Again, this is an order of operation problem: do parentheses before exponents.  (3 + 5)2 = 82= 64  versus  32 + 52  = 9 + 25 = 34 |
| #2  7 2 6  ̶ 1 7 4  6 5 2 | #3  7 ̶ 2(5 ̶ 1) = 5(4) = 20 | #4  -52 = -5 × -5 = 25 |
| #5  3-2 = -9 | #6  4 ÷ 0 = 0 | Example 3:  2 ÷ 8 = 4  2 ÷ 8 = ¼ or 0.25  versus  8 ÷ 2 = 4 |
| #7  0.2 + 0.07 = 0.09 | #8  1/6 + 1/6 = 2/12 = 1/6 | Example 4:  0.3 × 0.3 = 0.9  Relating this to fraction multiplication helps students remember that the sum of the decimal places in the problem equals the number of decimals places in the answer. I.e.,  0.3 x 0.3 = 3/10 x 3/10 = 9/100  = 0.09 |
| #9  1 ÷ 10 = 10 | #10  5/9  > 5/6 | #11  -53 + 50 = 3 |
| #12  -6x = 30  +6 +6  x = 36 | #13  7/8  ̶ 1/4 = 6/4 | #14  0.00000126 in scientific notation is 1.26 × 10-5 |
| #15  0.014 × 0.3 = 0.042 | #16  The part that is shaded in the   diagram is ¼. | #17  150 is what percentage of 500? |
| #18 | #19 | #20 |