**Significant Figures Calculations For Home Fun**

Since we’re still working on figuring out significant figures calculations, I have included a few more problems for your “homework.” This really isn’t homework in the traditional sense, because I’m including the answer key on the next page. In truth, I just want you to practice doing these problems and have you check your work to see if you’re doing it right.

1. 230 mm + 3299 mm = ?
2. 230 mm + 3290 mm = ?
3. 45.2 grams + 223.62 grams = ?
4. 0.00340 grams - 12 grams = ?
5. 4885 seconds + 340 seconds = ?
6. 62 grams / 4.443 mL = ?
7. 0.12 grams X 3.51 grams = ?
8. 590 mm / 29.44 s = ?

The Answer Key (now with explanations)!

1. 230 mm + 3299 mm = 3530 mm (Because this problem involves addition, we need to round to the least precise value. 230 mm rounds to the nearest 10 mm, while 3299 mm rounds to the nearest whole mm. As a result, we must round our raw answer of 3529 mm to the nearest ten mm, or 3530 mm.
2. 230 mm + 3290 mm = 3520 mm. (Both values round to the nearest ten mm, so our answer has to round to the nearest ten, too).
3. 45.2 grams + 223.62 grams = 268.8 grams (45.2 grams rounds to the nearest tenth of a gram and 223.62 rounds to the nearest hundredth of a gram. Since we’re dealing with the rules of addition and subtraction, we round to the nearest tenth of a gram)
4. 0.00340 grams - 12 grams = -12 grams. (Working the math out, we get an answer of -12.00340 grams. Since we’re subtracting, we round to the least precise decimal place. 0.00340 grams is precise to the nearest 0.00001 grams, while 12 grams is precise to the nearest gram. As a result, we round to the nearest gram, giving us 12.
5. 4885 seconds + 340 seconds = 5230 seconds. (As an addition problem we round to the least precise decimal place. Since 4885 seconds is precise to the nearest whole number and 340 seconds is precise to the nearest ten seconds, our answer must round to the nearest 10 seconds. This gives us an answer that rounds from 5225 to 5230 seconds.
6. 62 grams / 4.443 mL = 14 g/mL (When we multiply/divide, we round our answer to the number of significant figures as the least precise number we’re dealing with. Since 62 grams has two s.f. and 4.443 has four, we round our raw answer of 13.9545 to two significant figurest.
7. 0.12 grams X 3.51 grams = 0.42 g2 (0.12 grams has 2 sf, 3.51 has 3, and since we’re multiplying, we go with the one that has the fewest. 0.4212 g2 rounds to 0.42 g2.
8. 590 mm / 29.44 s = 20. mm/s (since we’re dividing, we use the rule where the answer has the fewest sig figs. 590 has two, 29.44 has three, so our answer of 29.44 rounds to two sf.)