0.2 Prelude: Arithmetic Operations

Did you do this? {

Practice exercises

On each problem, write down what you enter into your calculator and don't forget to write the units on your final answer. You are welcome to calculate the answer step-by-step but also challenge yourself to figure out the answer all at once, not hitting = on your calculator until the very end.

1. Tensia loves to garden but can't quite keep up with how many cucumbers are growing.

   - At the start of the week she had 8 cucumbers in her refrigerator.
   - Her son, Néstor took 3 home with him after dinner on Monday.
   - Tensia harvested another 7 cucumbers on Wednesday.
   - Her neighbor Sarah graciously took 4 cucumbers to make pickles.
   - Tensia herself ate 2 cucumbers during the week.

   How many cucumbers does she have left over?

   $8-3+7-4-2=$ **6 cucumbers**

2. Brent's landlord charges $15 per day for late rent.

   (a) What will Brent's late fee be if is 6 days late paying his rent?

   $\underbrace{\$15+\$15+\ldots+\$15}_{6 \text{ times}} = 6\times 15 =$ **\$90**

   (b) If Brent got a bill showing $195 in late fees, how many days late did he pay his rent?

   $? \times 15 = 195$

   $195 \div 15 =$ **13 days**

3. There are 2,624 students at a local university.

   (a) About $\frac{3}{4}$ of those students live on or within a mile of campus. How many students live on or within a mile of campus?

   3 ÷ 4 × 2624 = 1,968 students

   (b) The university wants to support 40 hours a week of onsite tutoring (in mathematics, writing, etc.) for each the 32 weeks that classes are in session. It costs about \$18/hour to pay the tutors and staff administrators. What is the total cost of tutoring?

   40 × 32 × 18 = \$23,040

   (c) The university is considering adding a tutoring fee to cover the cost of tutoring. If they wanted to cover the total cost of tutoring, what would the cost per student be?

   23,040 ÷ 2624 = 8.7804... ≈ \$8.78/student

4. A truck hauling grass seed weighs 3,900 pounds when it is empty. Each bag of seed it carries weighs 4.2 pounds. The **gross weight** of the truck is the total weight including the truck and the bags of seed.

   Story also appears in 2.1 #1, 3.2 #1, and 3.1 #1

   (a) How much does 1,300 bags of grass seed weigh?

   1300 × 4.2 = 5,460 pounds

   (b) What is the gross weight of the truck if it carries 1,300 bags of grass seed?

   5460 + 3900 = 9,360 pounds

   (c) You probably entered this calculation as $1300 \times 4.2 = +3900 =$. What happens if you skip the middle = sign and enter $1300 \times 4.2 + 3900$ instead?

   9,360 pounds same answer :)

   (d) What answer does your calculator give you if you enter $3900 + 4.2 \times 1300$ instead?

   9,360 pounds same answer :)

   (e) What does part (d) tell you about which operation your calculator did first: the + or the ×?

   In either order my calculator multiplies (×) first and adds (+) second.