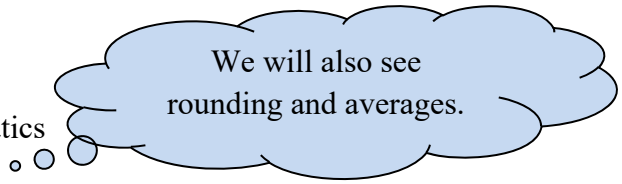
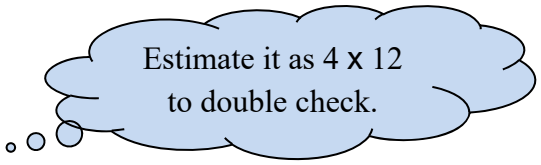
Technology-Integrated Mathematics
Class Notes
Decimals: Multiplication and Division of Decimal Numbers (Section 3.2)



Multiplication:
If you multiply decimals by hand, you ignore the decimal point and just multiply. Afterward, you give your answer as many decimal digits as the two numbers had in total. For instance, 0.5 and 0.3 both have one decimal digit. Their product could be calculated as 5 x 3 = 15; but then we move the decimal point so that we end up at 0.15 which has two decimal digits.

I mention this only because you may attempt to do simple products this way. However, I would expect you to work most calculations on the calculator.

Try this one on the calculator.



expl 1: Multiply.
4.302 x 12.05

expl 2: A paint sprayer is advertised for $899. It can also be purchased for 24 payments of $39.75 each. How much extra do you pay if you choose the payment plan?

Division:
Recall that division asks how many times a number (**divisor**) fits into another number (**dividend**). The answer is the **quotient**. To do this hand, it involves moving the decimal points until you end up with whole numbers; we will *not* do this.

expl 3: Divide.
$0.006 \div 0.04$

expl 4: How many sheets of metal are in a stack that is 8 inches high if each sheet is 0.0142 in. thick? Round to the nearest whole number.

Rounding:
Of course, there are times when we need to round numbers with which we are working. You will be asked to round to the nearest hundredth, thousandth, etc. or to some number of decimal places. We will use a very similar procedure to what we have seen before.

Book's Procedure for Rounding to Decimal Places (tenths, hundredths, etc.):

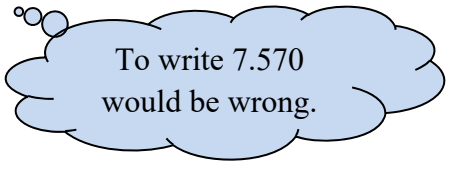
Step 1: Determine place to which we are to round. Mark below the number to the right of this place with some mark like ^ (or underline the place to which we are rounding)

Step 2: If the digit to the right (of your mark) is less than 5, replace all digits to the right with zeros. If these zeros are decimal digits, do *not* write them.

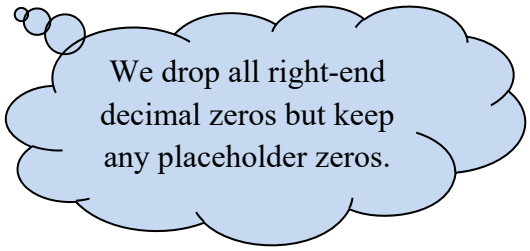
Example: 7.564 rounded to the nearest hundredth:

OR Step 3: If the digit to the right of your mark is 5 or more, increase the digit to the left of your mark (or the one you underlined) by 1. Replace all digits to the right of that with zeros. If these zeros are decimal digits, do *not* write them.

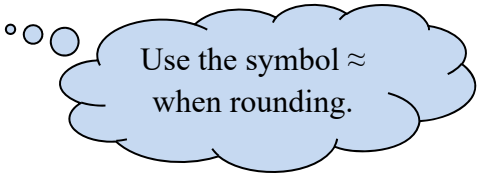
Example: 7.568 rounded to the nearest hundredth:



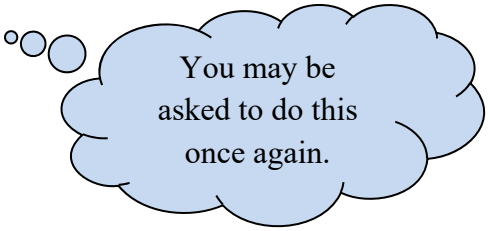
expl 5: Round to one decimal place.
15.2675



expl 6: Round to the nearest thousandth.
15.2675



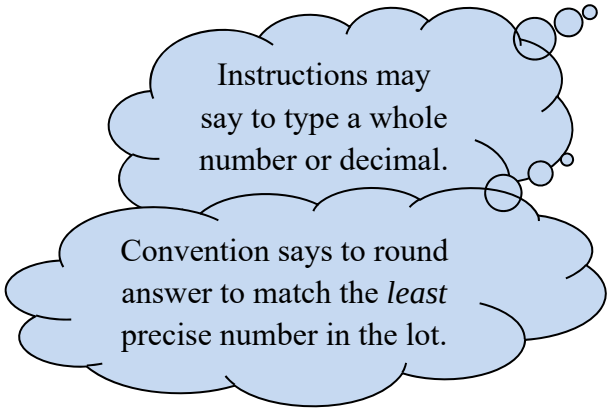
expl 7: Round to four decimal places.
0.00239



expl 8: Round to the nearest thousand.
52,456.0239

Averages:
We **average** numbers by adding them up and dividing by how many numbers we have. This is also called the **arithmetic mean**.

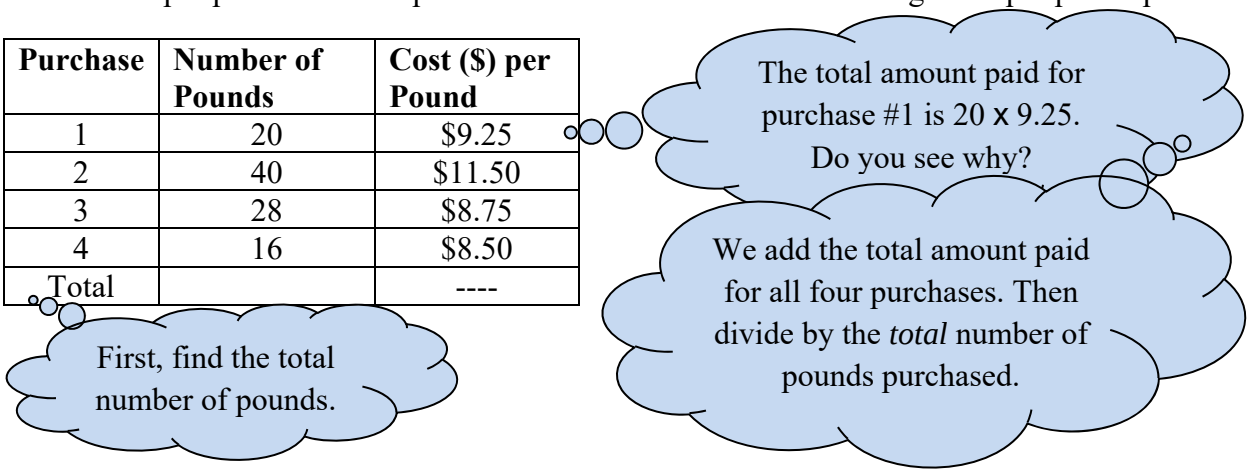
expl 9: Find the average weight of five castings that weigh 16.8, 17.3, 17.5, 18.2, and 19.4 lb. Do **not** round.



Weighted Averages:
When numbers are repeated, we can use this technique to average them.

expl 10: A restaurant manager made four purchases of salmon last month. The number of pounds and the cost per pound for each purchase is shown. Calculate the average cost per pound paid.

Purchase	Number of Pounds	Cost ($) per Pound
1	20	$9.25
2	40	$11.50
3	28	$8.75
4	16	$8.50
Total		----



If you are apt to try computations by hand, these tips may help you out.

1. Multiply a number by 10 by moving its decimal place over one place to the right. Multiply a number by 100 by moving it two places. Dividing by 10 or 100 or 1000 (etc.) means we move the decimal place to the left.

Example: Divide 732 by 100:

2. To divide a number by 5, use the fact that 5 is one-half of 10. Multiply the number by 2 and then divide by 10.

Example: Divide 64 by 5:

3. To divide a number by 25, use the fact that 25 is one-quarter of 100. Multiply the number by 4 and then divide by 100.

Example: Divide 40 by 25:

4. To multiply a number by 20, first multiply by 2 and then multiply that by 10.

Example: Multiply 34 by 20: