1.2

Estimation
Estimation

- The process of arriving at an approximate answer to a question is called *estimation*.
- Estimates are not meant to give exact values for answers but are a means of determining whether your answer is reasonable.
- We often round numbers to estimate, or approximate, an answer.
- The symbol $\approx$ means *is approximately equal to*. 
Example: Estimation

- For a staff meeting, Judith Spangler wants to buy her staff bagels and cream cheese. Estimate her cost to purchase 5 dozen bagels and 3 pounds of cream cheese if bagels are $6.59 a dozen and cream cheese is $3.29 per pound.

- Solution: Round the amounts to obtain an estimate.
  - Bagels: $5 \times $7 = $35$
  - Cream cheese: $3 \times $3 = $9$
  - Estimated total cost is $\approx $44$. 
Example: Using Estimates in Calculations

After one year Kara has 16,248.3 miles on her vehicle that she uses only for her job.

- Estimate how many miles she drives monthly.
- If her company pays her $0.29 per mile, estimate the amount that she is compensated monthly.
Example: Using Estimates in Calculations continued

Solution:

- Round the numbers to obtain an estimate.

Therefore the Kara drives approximately 1700 miles per month. \[
\frac{16,248.3}{12} \approx \frac{16,000}{10} = 1600
\]

- Rounding the compensation to $0.30 per mile, the monthly compensation is 1600 x $0.30, or $480.
Estimates on a Map

- Sometimes when working with measurements on a map, it may be difficult to get an accurate estimate because of the curves on the map.
- To get a more accurate estimate, you may want to use a piece of string and tape or pins to mark the ends.
Estimates on a Photo

- In order to estimate large areas, a photograph can be helpful. We can divide the photo into rectangles with equal areas, then pick one area that looks representative of all the areas.

- Estimate (count) the number of items in this single area. Then multiply by the number of equal areas.