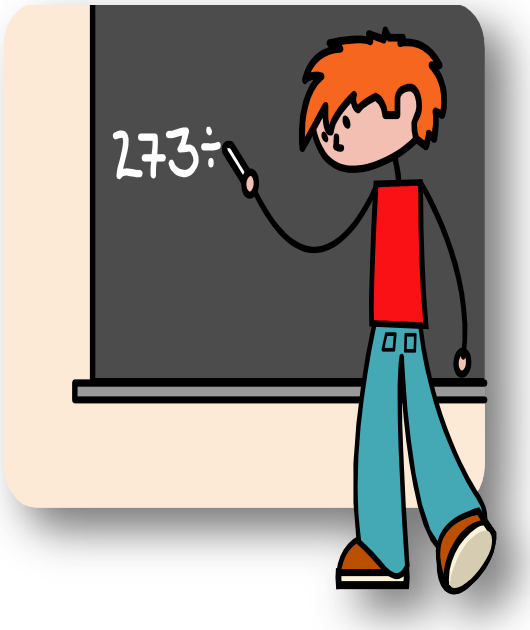
2.4 Further Applications of Linear Equations

By: Cindy Alder



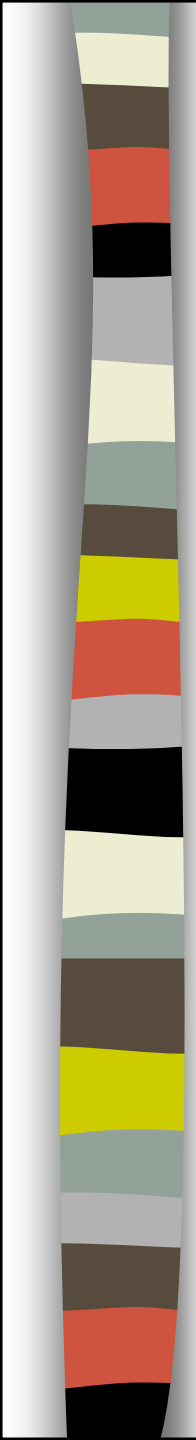
Objectives:

- **Solve problems about different denominations of money.**
- **Solve problems about uniform motion.**
- **Solve problems about angles.**
- **Solve problems about consecutive integers.**

Example 1

- Taylor has a box of coins containing only dimes and half-dollars. There are 26 coins, and the total value is $8.60. How many of each denomination of coin does he have?

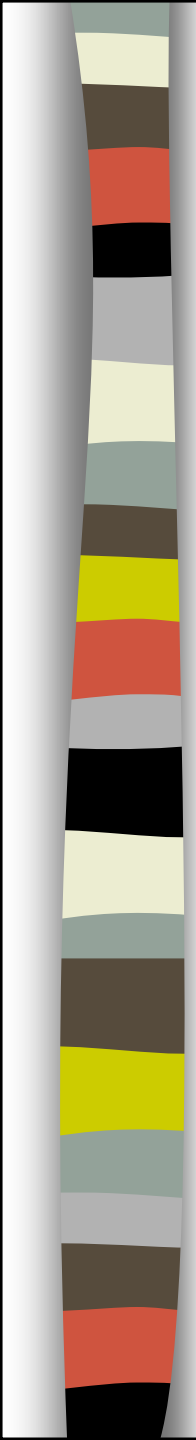
Number of Coins	Denominations (*Value of Each*)	Total Value



Example 2

- Two cars leave the same town at the same time. One travels north at 60 mph and the other south at 45 mph. In how many hours will they be 420 mi apart?

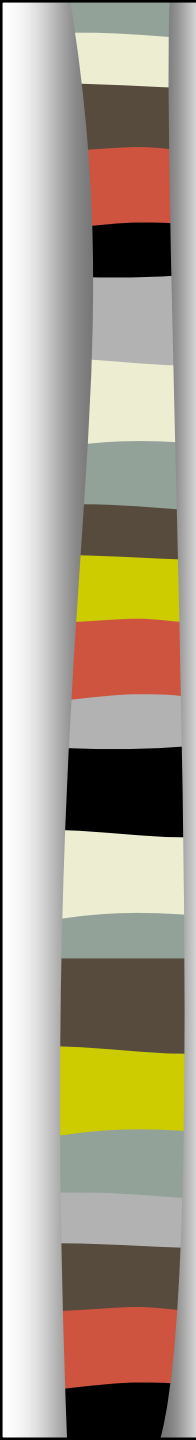
Rate	Time	Distance



Example 3

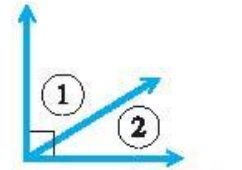
- When Chris drives his car to work, the trip takes ½ hour. When he rides the bus, it takes ¾ hour. The average rate of the bus is 12 mph less than his rate when driving. Find the distance he travels to work.

Rate	Time	Distance



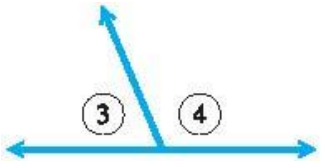
Objective 3 – Solve problems about angles.

- An angle can be measured by a unit called a **degree** (^{o}), which is of a complete rotation.



Angles 1 and 2 are complementary. They form a right angle.

- Two angles whose sum is 90^o are said to be: _____.
- An angle that measures 90^o is a_____.
- Two angles whose sum is 180^o are said to be: _____.

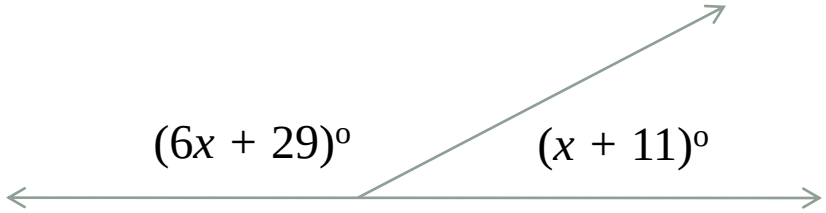


Angles 3 and 4 are supplementary. They form a straight angle.

- One angle *supplements* the other to form a _____ of 180^o.
- The sum of the angle measures of any triangle is _____.
- Vertical angles are _____.

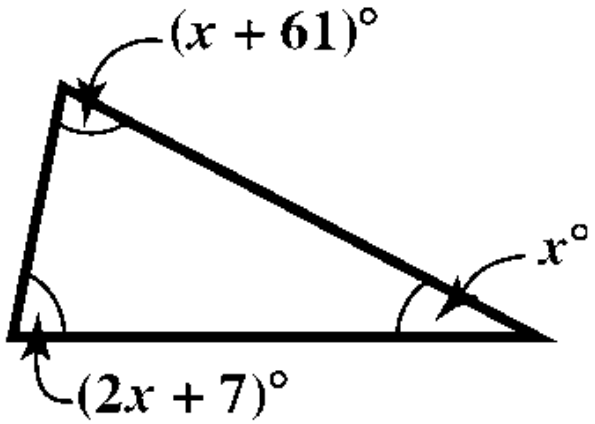
Example 4

- Find the measure of each marked angle in the figure.



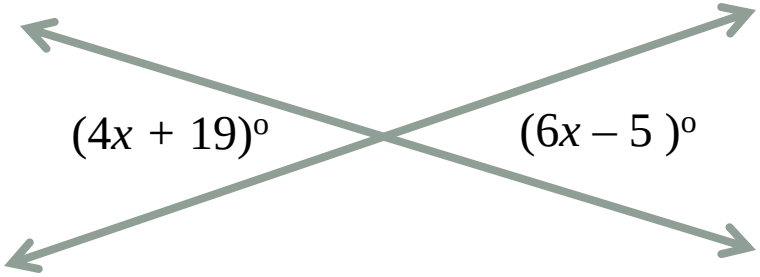
Example 5

- Find the value of x and determine the measure of each angle.



Example 6

- Find the measure of each marked angle in the figure.



Objective 4 – Solve problems about consecutive integers.

- _____ are integers that follow each other in counting order, such as 8, 9, and 10.
- _____ are even integers that follow each other, such as 2, 4, and 6.
- _____ are odd integers that follow each other, such as 11, 13, and 15.

Objective 4 – Solve problems about consecutive integers. (continued)

- In solving consecutive integer problems, if $x =$ the first integer, then, for any
  - Three consecutive integers, use
  - Three consecutive ***even*** integers, use
  - Three consecutive ***odd*** integers, use

Example 7

- Find two consecutive **even** integers such that six times the lesser added to the greater gives a sum of 86.