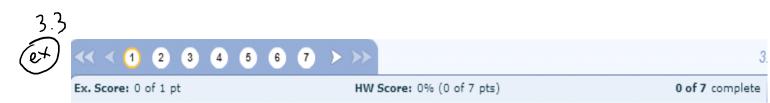
Applications of Linear Systems

Goal: To solve application problems using a system of two equations and two unknowns.

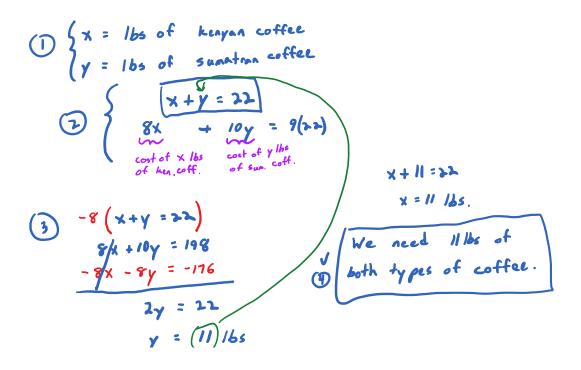
Polya's Four steps in Problem Solving

- (Read/understand problem (name unknown(s) using units of measure)
- 2 Develop a plan (set up equation(s))
- (3) carry out plan (solve equation(s))
- (4) look back (does answer make common)



The Coffee Counter charges \$8.00 per pound for Kenyan French Roast coffee and \$10.00 per pound for Sumatran coffee.

How much of each type should be used to make a 22 pound blend that sells for \$9.00 per pound?





Doreen Schmidt is a chemist. She needs to prepare 28 ounces of a 13% hydrochloric acid solution. Find the amount of 14% solution and the amount of 7% solution she should mix to get this solution.

How many ounces of the 14% acid solution should be in the mixture?

$$x = 02 \text{ of } 14\% \text{ solution}$$

$$y = 02 \text{ of } 7\% \text{ solution}$$

$$x + y = 28$$

$$0.14 \times + 0.01 y = .13(28)$$

$$02 \text{ of park only one only$$

3.3

Alvin paddled for 2 hours with a 6-km/h current to reach a campsite. The return trip against the same current took 8 hours.

Find the speed of the boat in still water. U_{is}

Distance = Rate · Time

Obwinstream
$$d = R \cdot T$$

Up stream $d = (r+6) \times 1$
 $d = (r-6) \times 1$

let
$$G = speel of boat in still water (km/h)$$
 $(r-6) \cdot 8 = (r+6) \cdot 2$
 $(r-6) \cdot 4 = r+6$
 $4r-2 \cdot 4 = r+6$
 $-r$
 $3r-2 \cdot 4 = 6$
 $+n \cdot 4 + 2 \cdot 4$
 $3r = 30$
 $r = 10 \text{ km/h}$

The boat goes 10 km/h in still water.