



7.4 Applications of Systems

Need To Know



- Overview of systems
- Recall guide lines to solve word problems
- Recall tools to solve problems
- Apply



Guide Lines to Solve Systems

Method	Strengths	Weaknesses
Graphing	• Solutions are visual	• Imprecise if answers are fraction • Hard to graph big numbers
Substitution	• Solutions are always exact • Easy to use if x or y is by itself.	• Hard if equations yield fraction • You can't visualize answer
Elimination	• Solutions are always exact • Easy to use if decimals or fractions appear in system	• You can't visualize answer



Guide Lines to Solve Problems

Five Steps for Problems Solving

1. Familiarize myself with the problem.
2. Translate to mathematics (i.e. an equation).
3. Carry out the mathematics (i.e. solve).
4. Check your answer in the original problem.
5. State your answer clearly.



Tools for Solving Problems

These tools are things you can do when you are stuck on a word problem.

1. Use keywords
2. Draw a picture
3. Make up a simpler problem
4. Make a guess to see what math applies
5. Make tables of numbers and look for patterns
6. Use charts to organize your information
7. Use a verbal model



Apply

In winning the 2000 conference finals, the Lakers scored 69 of their points on a combination of 31 two- and three-pointers. How many of each type did they make.

Steps

1. Familiarize
2. Translate
3. Carry out
4. Check
5. State answer

Tools

1. Keywords
2. Drawing
3. Simpler problem
4. Tables/Patterns
5. Charts
6. Guess
7. Verbal Model



Apply


Zoo prices are \$6 for adults and \$3 for children. On a cold day they collected \$1554 from 394 admissions. How many were adults and how many children?

Steps


1. Familiarize
2. Translate
3. Carry out
4. Check
5. State answer


Tools


1. Keywords
2. Drawing
3. Simpler problem
4. Tables/Patterns
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7. Verbal Model



Apply








[Steps](#)

1. Familiarize
2. Translate
3. Carry out
4. Check
5. State answer

Café Europa mixes Brazilian coffee worth \$19 per kg and Turkish coffee worth \$22 per kg. The new batch needs to be 300-kg costing \$20 per kg. How much of each type must be mixed?

	Brazilian	Turkish	Europa's
Num of kg of Beans			
Price			
Cost of Beans			

- [Tools](#)
1. Keywords
 2. Drawing
 3. Simpler problem
 4. Tables/Patterns
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 7. Verbal Model



Apply

[Steps](#)

1. Familiarize
2. Translate
3. Carry out
4. Check
5. State answer

Café Europa mixes Brazilian coffee worth \$19 per kg and Turkish coffee worth \$22 per kg. The new batch needs to be 300-kg costing \$20 per kg. How much of each type must be mixed?

- [Tools](#)
1. Keywords
 2. Drawing
 3. Simpler problem
 4. Tables/Patterns
 5. Charts
 6. Guess
 7. Verbal Model



An experiment requires 200 ml of a 68% acid solution. The only solutions available are 50% acid and 80% acid. How much of each do we mix?

Steps

1. Familiarize
2. Translate
3. Carry out
4. Check
5. State answer

	50%	80%	68%
Amount of Solution			
% Strength			
Amount of Acid			

Tools

1. Keywords
2. Drawing
3. Simpler problem
4. Tables/Patterns
5. Charts
6. Guess
7. Verbal Model



An experiment requires 200 ml of a 68% acid solution. The only solutions available are 50% acid and 80% acid. How much of each do we mix?

Steps

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3. Carry out
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Tools

1. Keywords
2. Drawing
3. Simpler problem
4. Tables/Patterns
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7. Verbal Model