3.4 Value, Interest & Mixture Problems

Study 3.4 # 1, 5, 11, 19, 23, 37

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3.4 Value, Interest & Mixture Problems

Two CDs by Bernie Williams: Journey Within @ $25 ($24.70) and Romance of the Guitar @ $10 ($8.48). If 538 CDs are sold for a total of$10,000, how many of each CD was sold?

Can you solve this problem?

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3.4 Value, Interest & Mixture Problems

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How to Do Word Problems:

G:

F:

1. **Read the problem** to determine problem type.

2. Read the problem again,

   identifying what's **given** and what you need **to find.**

3. **Organize the information:**

   draw a **diagram,** construct a **table,** etc.

4. **Identify the unknown variables,**

   and add to the diagram or table.

5. **Write equations** that relate the **given** and the **to find.**

6. **Solve the system** of equations to find the unknowns.

7. **Check the solution:** Have you found all of **"to find"?**

   Does solution **make sense?**   Do numbers fit?

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Type CD	Number	Unit Value	Total Value
JW	X		25X
RG		$10	
Total	538		10000

How to Do Word Problems:

1. **Read the problem** to determine p
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   identifying what's **given** and what
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5. **Write equations** that relate the **gi**
6. **Solve the system** of equations to
7. **Check the solution:** Have you fo
   Does solution **make sense?**   **Do n**

$$\Box + y = 538$$
$$25x + 10y = \Box$$

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3.4 Value, Interest & Mixture Problems
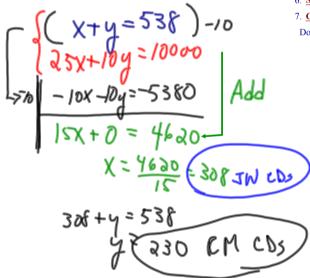
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How to Do Word Problems:

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JW	X	$25	25X
RG	Y	$10	10y
Total	538		10000

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   Does solution **make sense?**   **Do n**

$$\begin{cases} (X+y=538) \cdot -10 \\ 25x+10y=10000 \end{cases}$$

$$\begin{array}{r} -10x-10y=-5380 \\ \hline 15x+0=4620 \end{array} \quad \text{Add}$$

$$X=\frac{4620}{15}=308 \text{ JW CDs}$$

$$308+y=538$$
$$y=230 \text{ RM CDs}$$

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$$x + y = 538$$
$$25x + 10y = 10000$$
$$-10x - 10y = -5380$$
$$15x + 0 = 4620$$
$$x = 308 \text{ JW CDs sold}$$
$$y = 230 \text{ RG CDs sold}$$

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3.4 Value, Interest & Mixture Problems

Satellite college 3 times as many full time students as part time.
Full time take average of 14 units, part time students 3 units.
Charge is $13 per unit. How many of each type of student are
needed for revenue of $877,500?

Type	Number	Unit Value	Total Value
FT		(13)(14)	
PT			
Total			877500

How to Do Word Problems:

1. **Read the problem** to determine prob
2. Read the problem again,
   identifying what's **given** and what yo
3. **Organize the information:**
   draw a **diagram,** construct a **table,** et
4. **Identify the unknown variables,**
   and add to the diagram or table.
5. **Write equations** that relate the **given**
6. **Solve the system** of equations to fin
7. **Check the solution:** Have you found
   Does solution **make sense?**   **Do num**

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3.4   Value, Interest & Mixture Problems

Satellite college: **3 times as many full time students as part time.** Full time take average of 14 units, part time students 3 units. Charge is $13 per unit. How many of each type of student are needed for revenue of $877,500?

Type	Number	Unit Value	Total Value
FT	x	$13(14)	182x
PT	y	$13(3)	39y
Total			$877,500

x = 3y

182x + 39y = 877500

How to Do Word Problems:

1. **Read the problem** to determ

2. Read the problem again, identifying what's **given** and

3. **Organize the information:** draw a **diagram,** construct a t

4. **Identify the unknown varia** and add to the diagram or tab

5. **Write equations** that relate th

6. **Solve the system** of equation

7. **Check the solution:** Have yo

   Does solution **make sense?**

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3.4 Value, Interest & Mixture Problems

A person plans to invest $9000: Windslow @ 17% annual interest, and Columbia @ 10%. How much should he invest in each account to earn $1040 interest?

Type	Am't Invested Number	Rate of Interest Unit Value	Interest Earned Total Value
W	X	17%	.17 X
C	y	10%	.10 y
Total	$9000		$1040

How to Do Word Problems:

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2. Read the problem again,

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3.4 Value, Interest & Mixture Problems

A chemist needs 9 oz of 10% alcohol solution. He has 15% solution. How many ounces of 15% solution and of water should he use to make 9 oz of 10%?

	oz	%alcohol	oz pure alcohol
Type	Number	Unit Value	Total Value
Total			

How to Do Word Problems:

1. **Read the problem** to determine pr

2. Read the problem again,
   identifying what's **given** and what y

3. **Organize the information:**
   draw a **diagram,** construct a **table,**

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Type	oz Number	%alcohol Unit Value	oz pure alcohol Total Value
15% sol	x	0.15	0.15x
water	y	0	0y
Total	9	0.10	(0.10)(9)= 0.9

$$x + y = 9$$
$$0.15x + 0 = 0.9$$
$$x = 0.9 / 0.15 = 6oz \text{ 15% solution}$$
$$y = 3 \text{ oz water}$$

How to Do Word Pr

1. **Read the problem**
2. Read the problem a identifying what's **g**
3. **Organize the infor** draw a **diagram,** co
4. **Identify the unkno** and add to the diagr
5. **Write equations** tha
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