

Word Problem Samples

I. Simple Interest Problems

- a. Marcia has a job as a financial advisor in a bank. She advised a customer to invest part of his money in a money market fund earning 12% simple interest and the rest in an investment fund earning 14% simple interest. The customer had \$6000 to invest. If he earned \$772 in interest in 1 year, how much did he invest in each fund?

What	Principle	×	(rate × time)	=	Interest
Investment 1	x	×	.12	=	$.12x$
Investment 2	$6000 - x$	×	.14	=	$.14(6000 - x)$
Total	6000				772

Equation:

$$.12x + .14(6000 - x) = 772$$

$$.12x + 840 - .14x = 772$$

$$.12x - .14x = 772 - 840$$

$$-.02x = -68$$

$$\frac{-.02x}{-.02} = \frac{-68}{-.02}$$

$$x = 3400$$

Solution: \$3400 invested at 12% and \$2600 invested at 14%.

- b. A grocer at a specialty store is mixing tea worth \$6 per pound with tea worth \$8 per pound. He wants to obtain 144 pounds of tea worth \$7.50 per pound. How much of each tea should he use?

What	Amount	×	\$ (price of item)	=	Value (dollars and cents)
Cheap	x	×	6	=	$6x$
Expensive	$144 - x$	×	8	=	$8(144 - x)$
Mixture	144	×	7.50	=	$7.50(144)$

Equation:

$$6x + 8(144 - x) = 7.50(144)$$

$$6x + 1152 - 8x = 1080$$

$$6x - 8x = 1080 - 1152$$

$$-2x = -72$$

$$\frac{-2x}{-2} = \frac{-72}{-2}$$

$$x = 36$$

Solution: 36 pounds of the \$6 tea must be combined with 108 pounds of the \$8 tea.

- c. The Delgado Community College production of *The Music Man* was a big success. For opening night, 410 tickets were sold. Students paid \$3 each, while non-students paid \$7 each. If a total of \$1650 was collected, how many students and how many non-students attended?

What	Amount	×	\$ (price of item)	=	Value (dollars and cents)
Students	x	×	3	=	$3x$
Non-students	$410 - x$	×	7	=	$7(410 - x)$
Total	410				1650

Equation: $3x + 7(410 - x) = 1650$
 $3x + 2870 - 7x = 1650$
 $3x - 7x = 1650 - 2870$
 $-4x = -1220$
 $\frac{-x}{-x} = \frac{-1220}{-4}$
 $x = 305$

Solution: 305 students and 105 non-students attended the event.

- d. A cashier has a total of 126 bills in fives and tens. The total value of the money is \$840. How many of each type bill does he have?

What	Amount	×	\$ (price of item)	=	Value (dollars and cents)
fives	x	×	5	=	$5x$
tens	$126 - x$	×	10	=	$10(126 - x)$
Total	126				840

Equation:

$$5x + 10(126 - x) = 840$$

$$5x + 1260 - 10x = 840$$

$$5x - 10x = 840 - 1260$$

$$-5x = -420$$

$$\frac{-5x}{-5} = \frac{-420}{-5}$$

$$x = 84$$

Solution: 84 five-dollar bills and 42 ten-dollar bills.