Math 172 – Section 2.3: Applications – Investment Word Problem

Dugopolski, Intermediate Algebra, 6th ed., #46 page 97:

Samantha lent her brother some money at 9% per week simple interest and her sister one-half as much money at 16% simple interest. If she received a total of 34 cents in interest after one week, then how much did she lend to each sibling?

this is an investment problem: $I = Prt$

setting up table:

	I	$=$	P	r	t
brother	$0.09p$		p	0.09	1
sister	$0.16(\frac{1}{2}p)$		$\frac{1}{2}p$	0.16	1

note: could also let sister's amount be the variable, then brother's amount would be twice that variable

since the total interest is 34 cents or 0.34 dollars, it must also be the sum of the brother's & sister's interest:

$$0.34 = 0.09p + 0.16(\tfrac{1}{2}p)$$

$$0.34 = 0.09p + 0.08p$$

$$0.34 = 0.17p$$

$$2 = p$$

Samantha lent her brother $2 and her sister $1.