

Algebra RH

Essential Question: How do we solve word problems involving age?

Do Now:

- Tom is x years old. Represent his age in 10 years. $x + 10$
- Vicki is y years old. Represent her age 2 years ago. $y - 2$
- Sue is $2x - 3$ years old. Represent her age in 8 years. $(2x - 3) + 8 \rightarrow 2x + 5$
- 6 years ago Paul's age was $2x$. Represent his age 2 years from now. $(2x + 6) + 2 \rightarrow 2x + 8$
- 2 years from now Mary's age is $3x + 5$. Represent her age 4 years ago. $(3x + 5) - 2 - 4 \rightarrow 3x - 1$
- Pete is 1 year older than twice his sister's age. Represent each of their ages:

	SISTER	PETE
a. now	x	$2x + 1$
b. in 5 years	$x + 5$	$2x + 6$

Age Word Problems

Key Idea:



- define ages
- set up equation & solve

- Bill is three times as old as Pete. Six years from now Bill will be twice as old as Pete will be. How old are they now?

	<u>Now</u>	<u>Future +6</u>	
18 Bill	$3x$	$3x + 6$	$3x + 6 = 2(x + 6)$
6 Pete	x	$x + 6$	$3x + 6 = 2x + 12$
			$x + 6 = 12$
			$x = 6$

- Sue is 20 years old and Anne is 10 years old. How many years ago was Sue 3 times as old as Anne?

	<u>Now</u>	<u>Past -x</u>	
Sue	20	$20 - x$	$20 - x = 3(10 - x)$
Anne	10	$10 - x$	$20 - x = 30 - 3x$
			$20 = 30 - 2x$
			$-10 = -2x$
			$5 = x$

$x = \#$ of years ago 5

3. Ali's age plus her Dad's age is 50. In 8 years Ali's dad will be twice as old as she is. Find their ages now.

	<u>Now</u>	<u>Future +8</u>
14 Ali	x	$x+8$
36 Dad	$50-x$	$(50-x)+8 \rightarrow 58-x$

$$2(x+8) = 58 - x$$

$$2x + 16 = 58 - x$$

$$3x + 16 = 58$$

$$3x = 42$$

$$x = 14$$

4. Joan is 3 years older than Mary. Twice Joan's age 6 years ago is 14 more than Mary's age 5 years from now. How old are they now?

	<u>Now</u>	<u>Past -6</u>	<u>Future +5</u>
25 Mary	x		$x+5$
28 Joan	$x+3$	$x+3-6$ $x-3$	

$$2(x-3) = 14 + x + 5$$

$$2x - 6 = 19 + x$$

$$x - 6 = 19$$

$$x = 25$$