Equations Involving Ages

Part 1

①

Names	Now	In 6 years
Andy	$2k$	$2k+6$
Kate	k	$k+6$
		Total $=60$

$$\boxed{2k+6+k+6=60}$$
$$3k+12=60$$
$$-12 \quad -12$$
$$\frac{3k}{3}=\frac{48}{3}$$
$$k=16$$

Kate is 16 years old.
Andy is 32 years old.

③

Names	Now	In 7 years
Matthew	$3j$	$3j+7$; $2(j+7)$
Jenny	j	$j+7$

$$\boxed{3j+7=2(j+7)}$$
$$3j+7=2j+14$$
$$-2j \quad -2j$$
$$j+7=14$$
$$-7 \quad -7$$
$$j=7$$

Jenny is 7 years old.
Matthew is 21 years old.

⑤

Names	Now	In 2 years
Melissa	$J-24$	$J-24+2 \rightarrow J-22$
Joyce	J	$J+2$; $3(J-22)$

$34-24=10$

$$\boxed{J+2=3(J-22)}$$
$$J+2=3J-66$$
$$-J \quad -J$$
$$2=2J-66$$
$$+66 \quad +66$$
$$\frac{68}{2}=\frac{2J}{2}$$
$$34=J$$

Joyce is 34 years old.
Melissa is 10 years old.

7

Names	Now	12 years ago (subtract 12)
Kathy	$B-6$	$B-6-12 \rightarrow B-18$
Bill	B	$B-12$; $2(B-18)$

$24-6=18$

$$\boxed{B-12=2(B-18)}$$
$$B-12=2B-36$$
$$-B \qquad -B$$
$$-12=B-36$$
$$+36 \qquad +36$$
$$24=B$$

Bill is 24 years old.
Kathy is 18 years old.

Part 2

1

Names	Now	In x years (add x)
Mr Klinker	35	$35+x$; $2(10+x)$
daughter	10	$10+x$

$$\boxed{35+x=2(10+x)}$$
$$35+x=20+2x$$
$$-x \qquad -x$$
$$35=20+x$$
$$-20 \qquad -20$$
$$15=x$$

In 15 years

3

Names	Now	x years ago (subtract x)
Pete	14	$14-x$
grandpa	54	$54-x$; $6(14-x)$

$$\boxed{54-x=6(14-x)}$$
$$54-x=84-6x$$
$$+6x \qquad +6x$$
$$54+5x=84$$
$$-54 \qquad -54$$
$$\frac{5x}{5}=\frac{30}{5}$$
$$x=6$$

6 years ago

(5)

Names	Now	x years ago
Ms Ford	48	$48-x$; $2(35-x)$
Ms Lincoln	35	$35-x$

$$\boxed{48-x=2(35-x)}$$
$$48-x=70-2x$$
$$+2x \qquad +2x$$
$$48+x=70$$
$$-48 \qquad -48$$
$$x=22$$

$\boxed{\text{22 years ago}}$

(7)

Names	Now	
Mary	$t+4$	$3+4$
Toni	t	
Sam	$2(t+4)$	$2(3+4)$

sum of their ages is 8 * Toni

$$\boxed{t+4+t+2(t+4)=8t}$$
$$t+4+t+2t+8=8t$$
$$4t+12=8t$$
$$-4t \qquad -4t$$
$$\frac{12}{4}=\frac{4t}{4}$$
$$3=t$$

Toni is 3 years old.
Mary is 7 years old.
Sam is 14 years old.

A version of work w/o "t" for variable...

Names	Now
Mary	$x+4$
Toni	x
Sam	$2(x+4)$

$$x+4+x+2(x+4)=8x$$
$$x+4+x+2x+8=8x$$
$$4x+12=8x$$
$$-4x \qquad -4x$$
$$\frac{12}{4}=\frac{4x}{4}$$
$$3=x$$