

Name Key
8A: Algebra 1

Date _____
Period _____

- * present : now
- * future : add
- * past : subtract

* If there is a double was or will, the stand is the = sign

Age Day II

- * will/was : equal sign (=)

1) Marissa is 3 times as old as Lindsay. Eighteen years from now, Marissa will be twice as old as Lindsay will be then. Find the present age of both Marissa and Lindsay.

present	E	Future (add)	S	C
let $x = \text{Lindsay's present age}$ $3x = \text{Marissa's present age}$	$3x + 18 = 2(x + 18)$ $3x + 18 = 2x + 36$ $\begin{array}{r} -2x \\ \hline x + 18 = 36 \\ \hline \end{array}$	$x + 18 = 36$ $\begin{array}{r} -18 \\ \hline x = 18 \end{array}$	Lindsay's present age is 18 yrs old + Marissa's present age is 54 yrs old.	$3(18) = 54$ $18 + 18 = 36$ $54 + 18 = 72$ $36(2) = 72$
$x + 18 = \text{Lindsay's age 18 yrs from now}$ $3x + 18 = \text{Marissa's age 18 yrs from now}$	$x = 18$ $3x = 54$	* since Marissa was already "twice" that's why we then multiply Lindsay by two to get them =		their future age

2) John is now 3 times as old as his brother Chris. In 5 years, John will be twice as old as Chris will be then. Find their present ages.

present	E	Future (add)	S	C
let $x = \text{Chris' present age}$ $3x = \text{John's present age}$	$3x + 5 = 2(x + 5)$ $3x + 5 = 2x + 10$ $\begin{array}{r} -2x \\ \hline x + 5 = 10 \\ \hline \end{array}$	$x + 5 = 10$ $\begin{array}{r} -5 \\ \hline x = 5 \end{array}$	Chris' present age is 5 yrs old + John's present age is 15 yrs old.	$3(5) = 15$ $5 + 5 = 10$ $15 + 5 = 20$ $10(2) = 20$
$x + 5 = \text{Chris' age in 5 yrs}$ $3x + 5 = \text{John's age in 5 yrs}$	$x = 5$ $3x = 15$			their future age

present
 3) Tim's father is four times as old as Tim. Five years ago, Tim's father was seven times as old as Tim. How old is each now?

L	E	S	C
Let $x =$ Tim's present age $4x =$ Tim's father's present age	$4x - 5 = 7(x - 5)$ $4x - 5 = 7x - 35$ $\begin{array}{r} -4x \\ \hline -5 = 3x - 35 \\ +35 \\ \hline 30 = 3x \end{array}$ $\frac{30}{3} = \frac{3x}{3}$ $x = 10$ $4x = 40$	Tim is now 10 yrs old &	$4(10) = 40$ <hr/> $10 - 5 = 5$ $40 - 5 = 35$ } their past age $5(7) = 35$
$x - 5 =$ Tim's age 5 yrs ago $4x - 5 =$ Tim's father's age 5 yrs ago.	present	Tim's father is now 40 yrs old	

4) James is now 40 years old and Mike is now 20 years old. How many years ago was James three times as old as Mike was then?

L	E	S	C
Let $x =$ the # of yrs ago	$40 - x = 3(20 - x)$ $40 - x = 60 - 3x$ $\begin{array}{r} +3x \\ \hline 40 + 2x = 60 \\ -40 \\ \hline 2x = 20 \end{array}$ $\frac{2x}{2} = \frac{20}{2}$ $x = 10$	10 yrs ago James was three times as old as Mike was then	$40 - 10 = 30$ $20 - 10 = 10$ } their age 10 yrs ago $10(3) = 30$

present

→ Past (subtract)

5) Patrick is twice as old as Danielle. Six years ago, Patrick was three times as old as Danielle was then. Find their ages now.

E	E	S	C
<p>Let $x =$ Danielle's present age $2x =$ Patrick's present age</p> <hr/> <p>$x - 6 =$ Danielle's age 6 yrs ago $2x - 6 =$ Patrick's age 6 yrs ago</p>	$2x - 6 = 3(x - 6)$ $2x - 6 = 3x - 18$ $\begin{array}{r} -2x \qquad -2x \\ \hline -6 = x - 18 \\ +18 \qquad +18 \\ \hline x = 12 \\ 2x = 24 \end{array}$	<p>Danielle is now 12 yrs old + Patrick is now 24 yrs old</p>	$2(12) = 24$ $12 - 6 = 6$ $24 - 6 = 18$ <p>} their past age</p> $6(3) = 18$

present

→ Future (add)

6) Mrs. Sanford is three times as old as Mrs. Fox. Eight years from now, Mrs. Sanford's age will exceed twice Mrs. Fox's age at that time by 14 years. Find the present age of each.

E	E	S	C
<p>Let $x =$ Mrs. Fox's present age $3x =$ Mrs. Sanford's present age</p> <hr/> <p>$x + 8 =$ Mrs. Fox's age 8 yrs from now $3x + 8 =$ Mrs. Sanford's age 8 yrs from now</p>	$3x + 8 = 2(x + 8) + 14$ $3x + 8 = 2x + 16 + 14$ $3x + 8 = 2x + 30$ $\begin{array}{r} -2x \qquad -2x \\ \hline x + 8 = 30 \\ -8 \qquad -8 \\ \hline x = 22 \\ 3x = 66 \end{array}$	<p>Mrs. Fox's present age is 22 yrs old and Mrs. Sanford's present age is 66 yrs old</p>	$3(22) = 66$ $22 + 8 = 30$ $66 + 8 = 74$ <p>} their future age</p> $2(30) = 60$ $60 + 14 = 74$

2

