Example 13 Self Tutor

When a number is doubled and then subtracted from 3, the result is -17. Find the number.

Let x be the number.

$\therefore$ $2x$ is the number doubled.

$\therefore$ $3 - 2x$ is this number subtracted from 3.

So, $3 - 2x = -17$

$\therefore$ $3 - 2x - 3 = -17 - 3$ {subtracting 3 from both sides}

$\therefore$ $-2x = -20$

$\therefore$ $x = 10$ {dividing both sides by -2}

So, the number is 10. *Check*: $3 - 2 \times 10 = 3 - 20 = -17$ ✓

Example 14 Self Tutor

Malikah's mum is presently four times as old as Malikah. In 6 years' time her mum will only be three times as old as Malikah is then. How old is Malikah now?

Let Malikah's present age be x years.

$\therefore$ her mother's present age is $4x$ years.

	Now	*6 years' time*
Malikah	x	$x + 6$
Mother	$4x$	$4x + 6$

So, $4x + 6 = 3(x + 6)$ {her mum is three times as old}

$\therefore$ $4x + 6 = 3x + 18$

$\therefore$ $4x + 6 - 3x = 3x + 18 - 3x$

$\therefore$ $x + 6 = 18$

$\therefore$ $x = 12$ $\therefore$ Malikah's present age is 12 years.

Example 15 Self Tutor

Carl has only 20 cent coins and 50 cent coins in his wallet. He has three more 50 cent coins than 20 cent coins, and their total value is \$2.90. How many 20 cent coins does Carl have?

If Carl has x 20 cent coins then he has $(x + 3)$ 50 cent coins.

Coin	*Number*	*Value*
20 cent	x	$20x$ cents
50 cent	$x + 3$	$50(x + 3)$ cents

$\therefore$ $20x + 50(x + 3) = 290$ {equating values in cents}

$\therefore$ $20x + 50x + 150 = 290$

$\therefore$ $70x + 150 = 290$

$\therefore$ $70x = 140$

$\therefore$ $x = 2$ So, Carl has two 20 cent coins.