Solving Equations with Brackets

Brackets, Equations and Inequalities Step 7

Small Step: Solve equations, including equations with brackets.

1. Solve each of the one-step equations below.

   a. $a - 5 = 7$

   b. $3 + p = 8$

   c. $7 = 2k$

   d. $\frac{m}{5} = 2$

2. Solve each of the two-step equations below.

   a. $2b - 7 = 5$

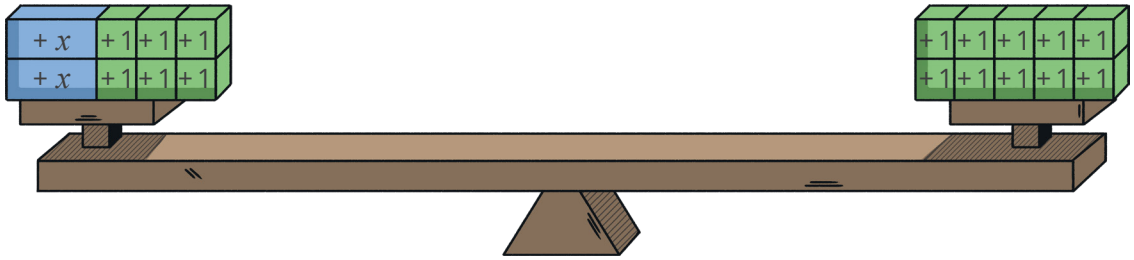
   b. $\frac{x}{3} + 5 = 10$

   c. $\frac{y + 5}{3} = 10$

   d. $2 = 4m + 10$

BEYOND MATHS

3. Niamh is trying to solve $2(x + 3) = 10$. She draws the following set of scales. Use Niamh's diagram to solve $2(x + 3) = 10$.



4. Hari and Kingston are solving the equation $3(2x + 7) = 27$.
   a. Some of Hari's working is shown below. Fill in the gaps to complete his working.

$3(2x + 7)$	=	36
expand		
_____	=	_____
$- 21$		$- 21$
_____	=	_____
$\div 6$		$\div 6$
_____	=	_____

   b. Some of Kingston's working is shown below. Fill in the gaps to complete his working.

$3(2x + 7)$	=	36
$\div 3$		$\div 3$
_____	=	_____
$- 7$		$- 7$
_____	=	_____
$\div 2$		$\div 2$
_____	=	_____

5. Solve each of the following equations.
   a. $2(x + 3) = 10$

   b. $12 = 4(2p + 7)$

c. $3(7 - y) = 15$

d. $5(2m - 3) = 18$

e. $12(\frac{a}{4} + 3) = 51$

f. $21 = -3(2t + 5)$

g. $4(2p - 7) = 18$

h. $6(2n + 1) = 102$

6. Oliver is solving $3(4x - 5) + 6 = 15$. His working is shown below.

$$
\begin{array}{rcll}
3(4x - 5) + 6 & = & 15 & \\
\div 3 & & & \div 3 \\
4x - 5 + 6 & = & 5 & \\
\text{simplify} & & & \text{simplify} \\
4x + 1 & = & 5 & \\
- 1 & & & - 1 \\
4x & = & 4 & \\
\div 4 & & & \div 4 \\
x & = & 1 &
\end{array}
$$

   a. What mistake has Oliver made?

   b. Find the correct solution to $3(4x - 5) + 6 = 15$.

7. Solve $4(2x - 4) + 7 = 15$.

8. Solve $3(2x - 7) - 5(3x - 4) = 17$.

Challenge

Given that $m = 2p + 7(2n - p)$, find the value of p when $m = 2$ and $n = 3$.