

# Addition and subtraction Equations

- \* When given an addition Equation...
  - You can use subtraction to solve.
- \* You must subtract the same number from Both sides of the equation.

Example:  $a + 15 = 26$

$$\begin{array}{r|l} a + 15 & = 26 \\ \downarrow -15 & -15 \\ \hline a & = 11 \end{array}$$

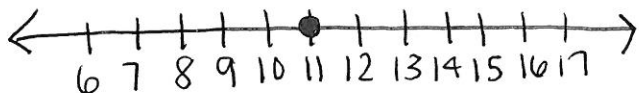
Check  
 $a + 15 = 26$

$$11 + 15 = 26$$

$$\checkmark \\ 26 = 26$$

$$\checkmark \text{ so } \boxed{a = 11}$$

graph



← this is an addition Equation  
SO we will use SUBTRACTION  
to solve and find the missing  
value.

← Divide your Equation into  
two ~~two~~ sides.

← Then you subtract 15 from  
both sides to get "a" by itself

← since  $15 - 15 = 0$  we can  
cross it out.

← We are now left with "a"  
by itself (Bring down "a")

← Check your solution by  
substituting.

← graph on a number line

Examples continued...

$$48 = x + 17$$

$$\begin{array}{r}
 48 = x + 17 \\
 -17 \quad | \quad -17 \\
 \hline
 \end{array}$$

$$31 = x$$

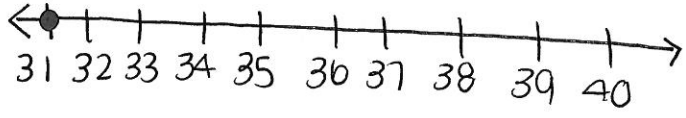
check

$$48 = x + 17$$

$$48 = 31 + 17$$

$$48 = 48 \checkmark \text{ so } \boxed{x = 31}$$

graph



$$35 = 29 + b$$

$$\begin{array}{r}
 35 = 29 + b \\
 -29 \quad | \quad -29 \\
 \hline
 \end{array}$$

$$6 = b$$

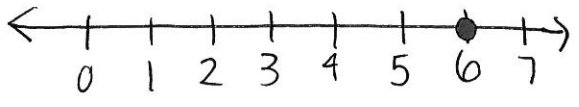
check

$$35 = 29 + b$$

$$35 = 29 + 6$$

$$35 = 35 \checkmark \text{ so } \boxed{b = 6}$$

graph



\* When given a subtraction Equation ...

- you can use addition to solve

\* You must Add the same number to Both Sides of the equation.

Example:

$$y - 21 = 18$$

$$\begin{array}{r} y - 21 = 18 \\ +21 \quad +21 \\ \hline y = 39 \end{array}$$

check

$$y - 21 = 18$$

$$39 - 21 = 18$$

$$\checkmark 18 = 18$$

$$\checkmark \text{ so } y = 39$$

← This is a subtraction Equation so we will use Addition to solve and find the missing value.

← Break your Equation into two sides.

← Then Add 21 to Both sides to get "y" by itself.

← since  $-21 + 21 = 0$  we can cross it out.

← We are now left with "y" by itself (Bring down "y")

← check your solution by substitution

← graph solution



# Examples continued...

$$b - 16 = 45$$

$$\begin{array}{r} b - 16 = 45 \\ \downarrow +16 \quad +16 \\ \hline b = 61 \end{array}$$

check

$$b - 16 = 45$$

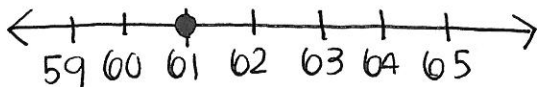
$$61 - 16 = 45$$

✓

$$45 = 45$$

✓ so  $b = 61$

graph



$$c - 17 = 18$$

$$\begin{array}{r} c - 17 = 18 \\ \downarrow +17 \quad +17 \\ \hline c = 35 \end{array}$$

check

$$c - 17 = 18$$

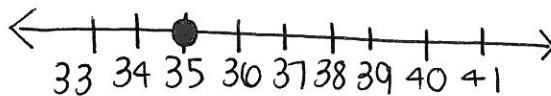
$$35 - 17 = 18$$

✓

$$18 = 18$$

✓ so  $c = 35$

graph



Solve check and graph

①  $n + 2 = 12$

check

$$n + 2 = 12$$

graph

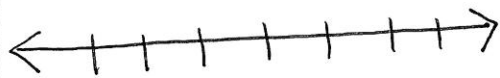


②  $n + 8 = 14$

check

$$n + 8 = 14$$

graph

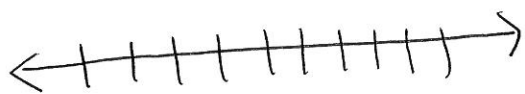


solve check and graph

$$\textcircled{3} \quad n - 7 = 12$$

check  
 $n - 7 = 12$

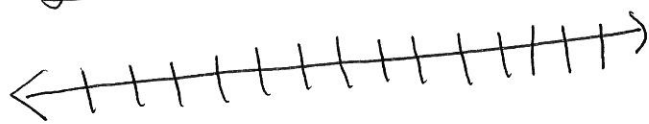
graph



$$\textcircled{4} \quad n - 15 = 33$$

check  
 $n - 15 = 33$

graph



Solve check and graph

5)  $n + 12 \neq 38$

check

$$n + 12 = 38$$

graph

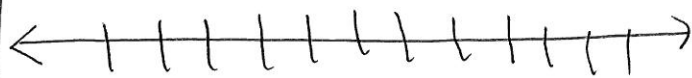


6)  $a - 14 \neq 12$

check

$$a - 14 = 12$$

graph



7)  $b + 14 \neq 14$

graph



check

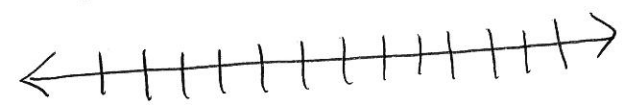
$$b + 14 = 14$$

solve check and graph

⑧  $x - 23 \neq 87$

check  
 $x - 23 = 87$

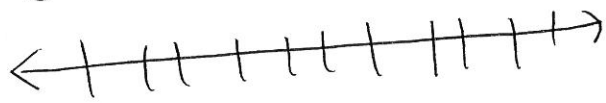
graph



⑨  $n + 15 \neq 128$

check  
 $n + 15 = 128$

graph



⑩  $x + 25 \neq 40$

check  
 $x + 25 = 40$

graph

