25)

$n \quad n+2$

$3(n+2) = n - 10$

$3n + 6 = n - 10$

$-n \quad -n$

$2n + 6 = -10$

$-6 \quad -6$

$2n = -16$

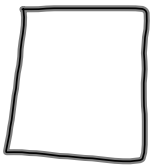
$n = -8$

-8

-6

26.)

$P = 2l + 2w$



$P = 24$ $\boxed{l = w + 3}$

$2(w+3) + 2w$

$24 = 2w + 6 + 2w$

$24 = 4w + 6$

$-6 \quad -6$

$\frac{18}{4} = \frac{4w}{4}$

$4\frac{1}{2} = w$

$4\frac{1}{2}$ in.

$l = 4\frac{1}{2} + 3$

$7\frac{1}{2}$ in

2-5 Solving Equations Involving Absolute Value

Absolute value expressions – define a range
- an upper limit
- a lower limit

$|-3| = 3$ distance cannot be negative

symbols of inclusion

$[\{( )\}]$ | |

$|3| = 3$

$-|3| = -3$ Exception

$|m+6|-14 \qquad m=4$

$|4+6|-14$

$10-14$

-4

If $|x|=4$ then $x=4$ and $x=-4$

$|-4|=4$ and $|4|=4$

Must consider both cases when the variable is inside of the |absolute value|

Case 1: The variable inside the absolute value could be positive

Case 2: The variable inside the absolute value could be negative

$|f+5|=17$

Case 1 (Positive Answer): $f+5=17$, $-5\ -5$, $f=12$

Case 2 (Negative answer): $f+5=-17$, $-5\ -5$, $f=-22$

12 or -22

$|-17|=17$

$17=17$ ✓

Do not make the variable negative

Make the answer negativ

$|b-1|=-3$ $\varnothing$ empty set

Absolute value cannot be negative!

2 A.) $|y+2|=4$

$y+2=4$ $\quad$ $y+2=-4$

$-2 \quad -2 \quad -2 \quad -2$

$y=2$ $\quad$ $y=-6$

2 and -6

$|2+2|=4$

$|4|=4$

$4=4$ ✓

$|-6+2|=4$

$|-4|=4$

$4=4$ ✓

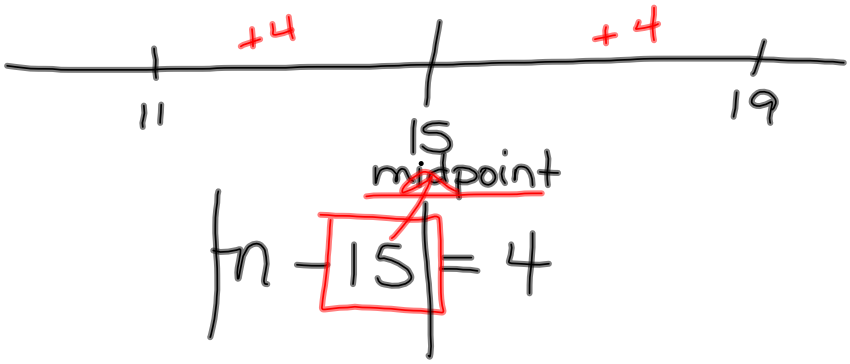
2B.) $|3a - 4| = -1$

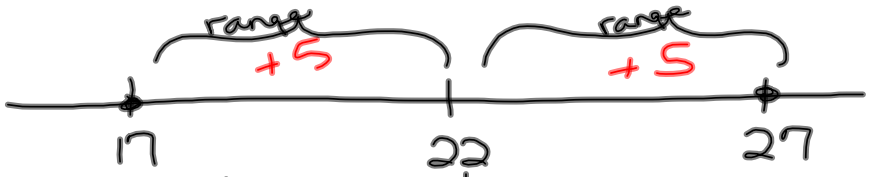
$\emptyset$

t = temp. to store icecream

$$|t-5|=5$$

$$t-5=5 \qquad t-5=-5$$
$$+5 \quad +5 \qquad +5 \quad +5$$
$$t=10 \qquad t=0$$


+4
+4
11
15
19
midpoint
|n − 15| = 4



$$|n-22|=5$$

use the midpoint

to find the range

$$\begin{array}{r} 17 \\ +27 \\ \hline 34 \end{array} \div 2 = 22$$

midpoint

30.) $\left|\frac{3}{4}a - 3\right| = 9$

$\frac{3}{4}a - 3 = 9$ $\quad +3 \quad +3$

$\frac{4}{3} \cdot \frac{3}{4}a = 12 \cdot \frac{4}{3}$

$a = 16$

$\frac{3}{4}a - 3 = -9$ $\quad +3 \quad +3$

$\frac{4}{3} \cdot \frac{3}{4}a = -6 \cdot \frac{4}{3}$

$a = -8$