

## 5.2 Opposites and the distributive Property

### Opposites

- In math two numbers are opposites if they differ only by sign

↳ the sum of the numbers is 0

$$-3, 3$$

$$\frac{1}{3}, -\frac{1}{3}$$

$$x + 3 = 5$$

$$-3 \quad -3$$

$$x + 0$$

$$x = 2$$

### Adding / Subtracting

$$7 + (-7)$$

$$-7 + (7)$$

$$7 - (-7)$$

double negative becomes positive  
add the opposite

$$7 + 7$$

$$-(a - 2)$$

$$-a + 2$$

$$(5 - b) - (2 + 3b)$$

$$5 - 2 - b - 3b$$

$$3 - 4b$$

$$19 - 2(x + 4)$$

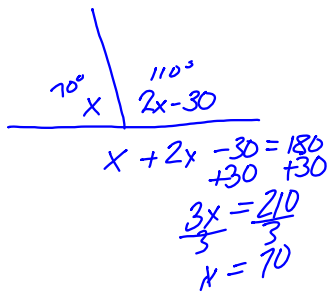
$$19 - 2x - 8$$

$$11 - 2x$$

$$-2x + 11$$

$$\begin{aligned}
 12 - 6x + 8x &= 20 \\
 12 + 2x &= 20 \\
 -12 &\quad -12 \\
 \hline
 2x &= 8 \\
 \frac{2x}{2} &= \frac{8}{2} \\
 x &= 4
 \end{aligned}$$

$$\begin{aligned}
 55 - 3n &= 70 \\
 -55 &\quad -55 \\
 \hline
 -3n &= 15 \\
 \frac{-3n}{-3} &= \frac{15}{-3} \\
 n &= -5
 \end{aligned}$$



$$\begin{aligned}
 &70^\circ \quad 110^\circ \\
 &x \quad 2x - 30 \\
 \hline
 &x + 2x - 30 = 180 \\
 &\quad +30 \quad +30 \\
 &\hline
 &3x = 210 \\
 &\frac{3x}{3} = \frac{210}{3} \\
 &x = 70
 \end{aligned}$$