

# Notes Key

## SOLVING EQUATIONS

What is a zero pair?

This is when the sum of two values equals zero

Examples:

$$\begin{array}{c} 1 + -1 \\ \text{or} \\ 1 - 1 \end{array}$$

$$\begin{array}{c} 2 + -2 \\ \text{or} \\ 2 - 2 \end{array}$$

$$\begin{array}{c} 14 + -14 \\ \text{or} \\ 14 - 14 \end{array}$$

Solving Equations

17 <sup>+</sup>	52 <sup>+</sup>
17 <sup>-</sup>	17 <sup>-</sup>

Equation:  $m + 17 = 52$

Solve

Solution:  $35 = m$

Check:  $35 + 17 = 52 \checkmark$

+3 <sup>+</sup>	12 <sup>+</sup>
-3 <sup>-</sup>	

Equation:  $d - 3 = 12$

Solve

Solution:  $15 = d$

Check:  $15 - 3 = 12 \checkmark$

1.5 <sup>+</sup>	<del>6.5</del> <sup>+</sup>
-1.5 <sup>-</sup>	-1.5 <sup>-</sup>

Equation:  ~~$1.5 + v = 6.5$~~

Solve:  $1.5 + v = 7$

Solution:  $5.5 = v$

Check:

$5.5 + 1.5 = 7 \checkmark$

$\frac{1}{3}$ <sup>+</sup>	$\frac{2}{3}$ <sup>+</sup>
$-\frac{1}{3}$ <sup>-</sup>	$\frac{1}{3}$ <sup>-</sup>

Equation:  $\frac{1}{3} + b = \frac{2}{3}$

Solve

Solution:  $\frac{1}{3} = b$

Check:  $\frac{1}{3} + \frac{1}{3} = \frac{2}{3} \checkmark$

$n - 15 = 22$ M = 37	Check: $17 + 15 = 32$	$495 - 1.75$ $1.75$ $495 - 1.75$	Check: $495 - 1.75 = 493.25$
$3 - 15$	Check: $15 - 3 = 12$	$1.25$ $1.25$ $1.25$	Check: $1.25 + 1.25 = 2.5$
$52.8$ $22.2$ $74.0$	Check: $52.8 + 22.2 = 74.0$	$1.25$ $1.25$ $1.25$	Check: $1.25 + 1.25 = 2.5$
$4.12 \times 10^8$ $4.12$ $74.0$	Check: $4.12 \times 10^8 \div 4.12 = 10^8$	$1.25$ $1.25$ $1.25$	Check: $1.25 + 1.25 = 2.5$
$4.12 \times 10^8$ $4.12$ $74.0$	Check: $4.12 \times 10^8 \div 4.12 = 10^8$	$1.25$ $1.25$ $1.25$	Check: $1.25 + 1.25 = 2.5$
$4.12 \times 10^8$ $4.12$ $74.0$	Check: $4.12 \times 10^8 \div 4.12 = 10^8$	$1.25$ $1.25$ $1.25$	Check: $1.25 + 1.25 = 2.5$
$4.12 \times 10^8$ $4.12$ $74.0$	Check: $4.12 \times 10^8 \div 4.12 = 10^8$	$1.25$ $1.25$ $1.25$	Check: $1.25 + 1.25 = 2.5$
$4.12 \times 10^8$ $4.12$ $74.0$	Check: $4.12 \times 10^8 \div 4.12 = 10^8$	$1.25$ $1.25$ $1.25$	Check: $1.25 + 1.25 = 2.5$
$4.12 \times 10^8$ $4.12$ $74.0$	Check: $4.12 \times 10^8 \div 4.12 = 10^8$	$1.25$ $1.25$ $1.25$	Check: $1.25 + 1.25 = 2.5$
$4.12 \times 10^8$ $4.12$ $74.0$	Check: $4.12 \times 10^8 \div 4.12 = 10^8$	$1.25$ $1.25$ $1.25$	Check: $1.25 + 1.25 = 2.5$

Solve equations by using the opposite operation.

- $+$   $\rightarrow$   $-$
- $-$   $\rightarrow$   $+$
- $\times$   $\rightarrow$   $\div$
- $\div$   $\rightarrow$   $\times$

Write an addition or subtraction equation then solve. Check (balance) your work.

The difference of a number and 15 is 22.

$$n - 15 = 22$$

$$+15 \quad +15$$

$$n = 37$$

A number less 8 is 4.

$$n - 8 = 4$$

$$+8 \quad +8$$

$$n = 12$$

The sum of a number and 8 is 32.

$$n + 8 = 32$$

$$-8 \quad -8$$

$$n = 24$$

A number less 14 is 16.

$$n - 14 = 16$$

$$+14 \quad +14$$

$$n = 30$$

Model each scenario. Write an addition or subtraction equation then solve. Check (balance) your work. Lesson goal: Solve for all for  $x$  (unknown and a constant term). The unknown term costs \$22. Write an addition equation to show how much the speed on the highway then solve.

$$n + 10 = 26$$

$$h = 16$$

check  $16 + 10 = 26$

During a sales trip, Mr. Jones drove 15 miles east from Brownsville to Carlton. Then he drove several more miles east from Carlton to San City. The distance from Brownsville to San City is 35 miles. Write and solve an addition equation to find how many miles it is from Carlton to San City.

$$15 + c = 35$$

$$-15 \quad -15$$

$$c = 20$$

check  $15 + 20 = 35$

A box of pencils costs \$3. Brian got \$2 change after paying for one box. Write and solve a subtraction equation to show how much Brian gave the cashier.

$$x - 3 = 2$$

$$+3 \quad +3$$

$$x = 5$$

check  $5 - 3 = 2$

After dropping 5°, the temperature was 25°. Write a subtraction equation to show what the starting temperature was.

$$t - 5 = 25$$

$$+5 \quad +5$$

$$t = 30$$

check  $30 - 5 = 25$