

Notes 3-5

Int 2

Write & Solve Two-Step Equations

Unit 3

**ADD**

\* more than (switch order)

sum

plus

increased by

**SUBTRACT**

\* less than (switch order)

minus

difference

decreased by

3 less than 5 =  $5 - 3$

**MULTIPLY**

of times

product

Double ( $\cdot 2$ )

Triple ( $\cdot 3$ )

Twice ( $\cdot 2$ )

Squared  $3^2$

$3 \cdot 3$

Cubed  $4^3$

$4 \cdot 4 \cdot 4$

half ( $\cdot \frac{1}{2}$ )

**DIVIDE**

quotient

half ( $\div 2$ )

divide by

quotient of 6 and 3  $\rightarrow \frac{6}{3}$

divisor

~~divisor~~

dividend

**EQUAL**

Same as

equal to

equivalent

is

Total (+)

A Number  $\rightarrow$  Variables

Translate each sentence into an equation and solve.

Ex. 1: Eight less than three times a number is -23.

$$\begin{array}{r}
 8 \quad \curvearrowright \quad 3 \cdot x \\
 3x - 8 = -23 \\
 \underline{+8} \quad \quad +8 \\
 3x = -15 \\
 \underline{\quad \quad \quad} \\
 \frac{3x}{3} = \frac{-15}{3}
 \end{array}$$

$$\begin{aligned}
 3x - 8 &= -23 \\
 x &= -5
 \end{aligned}$$

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Ex. 2: Thirteen is 7 more than one-fifth of a number.

$$13 = \frac{1}{5}x + 7$$

$$\begin{array}{r} 13 \\ -7 \\ \hline \end{array} = \begin{array}{r} \frac{1}{5}x + 7 \\ -7 \\ \hline \end{array}$$

$$\frac{6}{\frac{1}{5}} = \frac{\frac{1}{5}x}{\frac{1}{5}}$$

$$13 = \frac{1}{5}x + 7$$

$$x = 30$$

Ex. 3: Five more than twice a number is 7.

$$2x + 5 = 7$$

$$\begin{array}{r} 2x + 5 \\ -5 \\ \hline \end{array} = \begin{array}{r} 7 \\ -5 \\ \hline \end{array}$$

$$\frac{2x}{2} = \frac{2}{2}$$

$$2x + 5 = 7$$

$$x = 1$$

Ex. 4: Fourteen plus a number, divided by 8 is 2.

$$\frac{14 + x}{8} = 2 \cdot 8$$

$$\begin{array}{r} 14 + x \\ -14 \\ \hline \end{array} = \begin{array}{r} 16 \\ -14 \\ \hline \end{array}$$

$$x = 2$$

$$\frac{14+x}{8} = 2$$

$$x = 2$$

Ex. 5: Seven less than twice a number is 5.

$$2x - 7 = 5$$

$$\begin{array}{r} 2x - 7 \\ +7 \\ \hline \end{array} = \begin{array}{r} 5 \\ +7 \\ \hline \end{array}$$

$$\frac{2x}{2} = \frac{12}{2}$$

$$2x - 7 = 5$$

$$x = 6$$

Ex. 6: The product of 4 and a number, decreased by 6 is -10.

$$4x - 6 = -10$$

Ex. 7: Eight less three times a number is -14.

$$8 - 3x = -14$$

Ex. 8: Three more than the quotient of a number and 6 is 7.

$$\frac{x}{6} + 3 = 7$$

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Ex. 3: You buy 3 books that each cost the same amount and a magazine, all for \$59.99. You know that the magazine costs \$1.99. How much does each book cost?

$$3x + 1.99 = 59.99$$

Books + Magazine = Total

$$3x + 1.99 = 59.99$$

$$\quad - 1.99 \quad - 1.99$$


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$$\frac{3x}{3} = \frac{58}{3}$$

Ex. 4: A personal trainer buys a weight bench for \$500 and  $w$  weights for \$24.99 each. The total cost of the purchase is \$849.86. How many weights were purchased?

$$\text{Bench} + \text{Weights} = \text{Total}$$

$$500 + 24.99w = 849.86$$

Ex. 5: You and your friend's lunch cost \$19. Your lunch cost \$3 more than your friend's. How much was your friend's lunch?

$$\text{You} + \text{Friends} = \text{Total}$$

$$\boxed{x+3} + \boxed{x} = 19$$

$$2x + 3 = 19$$