

Lesson Title 2.4 Problem Solving DAY TWO Notes

B2A2

Date

Objective 2:

Solving a Formula for One of its Variables

When you solve a formula for a specific variable while leaving other variables in the formula it is called a literal equation.

SOLVING EQUATIONS for a SPECIFIED VARIABLE:

- 1) Multiply on both sides to clear the equation of fractions if they occur.
- 2) Use the distributive property to remove parentheses if they occur.
- 3) Simplify each side of the equation by CLT.
- 4) Get all terms containing the specified variable on one side and all other terms on the other side by using the addition POE.
- 5) Get the specified variable alone by using the multiplication POE.

TASK 1: Solve the temperature formula provided below for Celsius instead of Fahrenheit. Show your steps:

$$F = \frac{9}{5}C + 32$$

$$-32 \quad -32$$

$$\frac{5}{9} \cdot F - 32 = \frac{5}{9}C + \frac{5}{9} \cdot 32$$

$$C = \left(\frac{5}{9}\right)(F - 32)$$

TASK 2: Solve the literal equation for the variable chosen.

a) $V = lwh$ for l $l = \frac{V}{wh}$

b) $I = \frac{PRT}{PT}$ for R $R = \frac{I}{PT}$

c) $y = mx + b$ for x $-b - b \rightarrow \frac{y-b}{m} = \frac{mx}{m} \rightarrow x = \frac{y-b}{m}$

d) $H = 5as + 10a$ for s $\frac{H}{5a} = \frac{5a(s+2)}{5a} \rightarrow \frac{H}{5a} = s + 2 \rightarrow s = \frac{H}{5a} - 2$

e) $P = 2l + 2w$ for w $\frac{P}{2} = \frac{2(l+w)}{2} \rightarrow \frac{P}{2} = l + w \rightarrow \frac{P}{2} - l = w$

f) $N = F + d(n-1)$ for d $\frac{N-F}{n-1} = \frac{F + d(n-1) - F}{n-1} \rightarrow d = \frac{N-F}{n-1}$

g) $A = \frac{1}{2}a(b+B)$ for B $\frac{2A}{a} = \frac{1}{2}a \cdot \frac{b+B}{a} \rightarrow \frac{2A}{a} = \frac{1}{2}(b+B) \rightarrow \frac{4A}{a} = b+B \rightarrow B = \frac{4A}{a} - b$