

## Homework Check

Make your own homework check sheet

Square 1 Pg 106 # 34

Square 2 Pg. 106 #40

36  $3a + 1 = -3.6(a - 1)$   
 $3a + 1 = -3.6a + 3.6$   
 $+3.6a \quad +3.6a$   
 $6.6a + 1 = 3.6$   
 $-1 \quad -1$   
 $6.6a = 2.6$   
 $\frac{6.6}{6.6} = \frac{2.6}{6.6}$   
 $\frac{26}{66} = \frac{13}{33} = a$

38  $5b + 4 = 2(b + 2)$   
 $5b + 4 = 2b + 4$   
 $2b \quad -2b$   
 $3b + 4 = 4$   
 $-4 \quad -4$   
 $3b = 0$   
 $\frac{3}{3} = \frac{0}{3}$   
 $b = 0$

24  $(9 + 4) - 3g = 1 + 4$   
 $4 - 3g = 1 + 4$   
 $+3g \quad +3g$   
 $4 = 1 + 3g$   
 $-1 \quad -1$   
 $3 = 3g$   
 $\frac{3}{3} = \frac{3g}{3}$   
 $1 = g$   
 $22) 8 - (3 + b) =$   
 $8 - 3 - b = b - 9$   
 $5 - b = b - 9$   
 $+b \quad +b$   
 $14 = 2b$   
 $\frac{14}{2} = \frac{2b}{2}$   
 $7 = 2b$

## Test Taking

When is a fraction undefined? when the denominator is zero

So, if  $y = \frac{2}{x}$ , what number can't  $x$  be equal to?  $0 = x$  We call this a restriction

If  $y = \frac{3x-1}{7x}$ , state the restriction?  $x=0$   $\frac{3x-1}{7x} = \frac{0-1}{7(0)} = \frac{0-1}{0}$

If  $b = \frac{7n}{n-1}$ , state the restriction?  $n=1$   $\frac{7n}{n-1} = \frac{7}{1-1} = \frac{7}{0}$

If  $m = \frac{y-1}{y+3}$ , state the restriction?  $y=-3$   $\frac{y-1}{y+3} = \frac{0-1}{0+3} = \frac{0-1}{0}$

## 2-5 Literal equations and Formulas

copy vocabulary into interactive notebook

**Literal equation** - is an equation that involves two or more variables

**Formula** - is an equations that states a relationship among quantities.

## Literal Equations

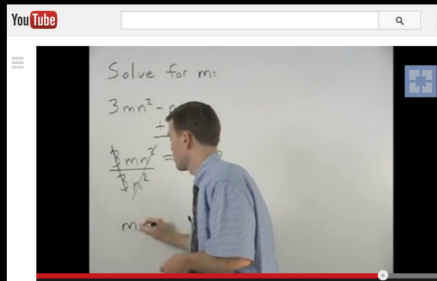
- Isolate the variable.
- To solve for a variable, simply substitute the values into your equation and solve.

## CH 2-5 Solving Literal Equations and Formulas

Solve each formula for the specified variable.

1.  $7t = x$  for  $t$

2.  $x - 2y = 1$  for  $y$



### Solving Literal Equations:

To solve a literal equation, we are solving for one variable in terms of another.

This is useful when doing conversions using various formulas.

1) Solve for  $x$ :  $ax + b = c$

$$\begin{aligned} -b &= -b \\ \frac{ax + b}{a} &= \frac{c - b}{a} \\ y &= \frac{c - b}{a} \end{aligned}$$

Are there any restrictions?

$$a \neq 0$$

2) Solve for  $F$ :  $S = 3F + 24$

$$\begin{aligned} -24 & \quad -24 \\ \frac{S - 24}{3} &= \frac{3F}{3} \\ \frac{S - 24}{3} &= F \\ S - 24 &= 3F \end{aligned}$$

Are there any restrictions?

$$S - 24$$

3) (i) What is the formula for the area of a triangle?

$$A = \frac{1}{2}bh$$



3b

(ii) Solve the above formula for  $h$ .

$$\frac{2}{1}A = \frac{1}{2}bh \cdot \frac{2}{1} \quad \div \frac{1}{2}$$

$$\frac{2A}{b} = \frac{bh}{b}$$

KcF.

$$\frac{2A}{b} = h$$

o2

(iii) Are there any restrictions in either formula?

4) (i) What is the formula for the perimeter of a rectangle?

$$P = 2L + 2W$$



$$-2L = -2L$$

(ii) Solve the above formula for  $W$ .

$$\frac{P - 2L}{2} = \frac{2W}{2}$$

$$\frac{P - 2L}{2} = W$$

$$\frac{P - 2L}{2} = W$$

$$\frac{P}{2} - L = W$$

$$\frac{P}{2} - L = W$$

(iii) Are there any restrictions in either formula?

5) (i) What is the formula for density?

$$D = \frac{M}{V}$$

(ii) Solve the above formula for V.

$$\frac{V}{1} D = \frac{M}{\cancel{V}} \cdot \frac{V}{1}$$

$$\frac{V \cdot D}{D} = \frac{M}{D}$$

$D \neq 0$

$$V = \frac{M}{D}$$

(iii) Are there any restrictions in either formula?

6) (i) What is the formula for the area of a trapezoid?

$$A = \frac{1}{2}(b_1 + b_2) \times h$$

(ii) Solve the formula above for  $b_1$

$$2 \cdot A = \frac{1}{2}(b_1 + b_2) \times h \cdot 2$$

$$h \neq 0 \quad \frac{2A}{h} = \frac{(b_1 + b_2) \times h}{h}$$

$$\frac{2A}{h} = b_1 + b_2$$

(iii) Are there any restrictions in either formula?

Formula Name	Formula	Definitions of Variables
Perimeter of a rectangle	$P = 2\ell + 2w$	$P$ = perimeter, $\ell$ = length, $w$ = width
Circumference of a circle	$C = 2\pi r$	$C$ = circumference, $r$ = radius
Area of a rectangle	$A = \ell w$	$A$ = area, $\ell$ = length, $w$ = width
Area of a triangle	$A = \frac{1}{2}bh$	$A$ = area, $b$ = base, $h$ = height
Area of a circle	$A = \pi r^2$	$A$ = area, $r$ = radius
Distance traveled	$d = rt$	$d$ = distance, $r$ = rate, $t$ = time
Temperature	$C = \frac{5}{9}(F - 32)$	$C$ = degrees Celsius, $F$ = degrees Fahrenheit

Solving Literal Equations - The Next Level...

What happens when the variable you are solving for is in **two** places?



Example:

Solve for  $x$  in the equation:  $ax + bx = c$

$$\frac{x(a+b) = c}{a+b} \quad \frac{c}{a+b}$$

$$x = \frac{c}{a+b}$$

Are there any restrictions?

try these!

1) Solve for P and state the restrictions, if any:

$$A = P + PRT$$

2) Solve for M and state the restrictions, if any:

$$MB - MA = D + C$$

**CHALLENGE #1**

Solve for x and state the restrictions, if any:

$$Rx = Mx + Ay$$

Let's Practice

1.  $6w - y = 2z$  solve for w

6.  $\frac{3b - 4}{2} = c$  solve for b