Find the exact solution to each equation.

1. $5 + 6p - 19 = 3p$

$-14 + 6p = 3p$

$-6p \quad -6p$

$\frac{-14}{-3} = \frac{-3p}{-3}$ $\quad p = \frac{14}{3}$

When all the variables cancel out in an equation:

It means that it doesn't matter what you substitute for the variable the equation is either going to ALWAYS be true or ALWAYS be false.

No Solution

Solution is All Real #'s

2. $4 - 3(m + 2) + 7m = -3 + 8 + 4m - 2$

$4 - 3m - 6 + 7m = -3 + 8 + 4m - 2$

$4m - 2 = 4m + 3$

$-2 \neq 3$ $\emptyset$

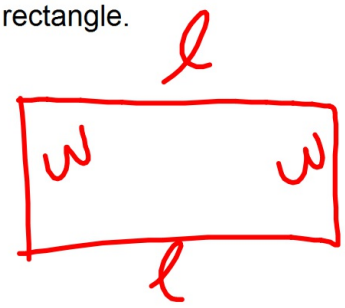
3. $9k + 2 - 3k - 14 = 3(2k - 5) + 3$

$9k + 2 - 3k - 14 = 6k - 15 + 3$

$6k - 12 = 6k - 12$

Infinite sols.

4. The perimeter of a rectangle is 46 cm. The length is one less than twice the width. Write and solve an equation to find the dimensions (length and width) of the rectangle.



$P = 2\ell + 2w$

$46 = 2(2w-1) + 2w$

$\ell = 2w - 1$

$46 = 4w - 2 + 2w$

w = width

$6w - 2 = 46$

$6w = 48$

$w = 8$

Section 2-6: Formulas

A **literal equation** is an equation involving two or more variables. Formulas are special types of literal equations.

1. Solve for Q $17 = 23Q$ $\frac{17}{23} = Q$

1. Solve for L $A = LW$ $\frac{A}{W} = L$

Don't use a calculator!

2. Solve for W $13 = 5W + \sqrt{3}$ $-\sqrt{3} \quad -\sqrt{3}$ $\frac{13 - \sqrt{3}}{5} = \frac{5W}{5}$ $W = \frac{13 - \sqrt{3}}{5}$

2. Solve for b $y = mx + b$ $-mx \quad -mx$ $b = y - mx$

3. Solve for h $\quad 2 \cdot A = \frac{1}{2}bh \cdot 2$

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

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

4. Solve for t $\quad I = prt$

$$\frac{I}{pr} = \frac{prt}{pr}$$

$$t = \frac{I}{pr}$$

5. Solve for x_1 $2 \cdot M = \frac{x_1 + x_2}{2} \cdot 2$

$2M = x_1 + x_2$

$-x_2 \quad -x_2$

$2M - x_2 = x_1$

6. Solve for y $Ax + By = C$

$-Ax \quad -Ax$

$By = C - Ax$

$y = \frac{C - Ax}{B}$

7.) Solve for A

$A + R = 5(C - 2A)$

$A + R = 5C - 10A$

$+10A \quad +10A$

$11A + R = 5C$

$11A = 5C - R$

$A = \frac{5C - R}{11}$

8.) Solve for N

$N + Q = B(K - RN)$

$N + Q = BK - BRN$

$+BRN \quad +BRN$

$N + BRN + Q = BK$

$N + BRN = BK - Q$

$N(1 + BR) = BK - Q$

$N = \frac{BK - Q}{1 + BR}$

9.) Solve for W

$K = R + M(W - A)$

$K = R + MW - MA$

$-MW \quad -MW$

$-MW + K = R - MA$

$-MW = R - MA - K$

$W = \frac{R - MA - K}{-M}$

10.) Solve for K

$A = B + \frac{K - R}{E}$

$-B \quad -B$

$E(A - B) = \frac{K - R}{E} \cdot E$

E

$E(A - B) = K - R$

$E(A - B) + R = K$

1.) **Construction** Bricklayers use the formula $N = 7LH$ to estimate the number of bricks N needed to build a wall of height H and length L.

a. Solve the equation for H.

b. What is the height of a wall that is 30 feet long and that requires 2310 bricks to build?

a. $N = 7LH$

$\frac{N}{7L} = H$

b. $H = \frac{2310}{(7)(30)}$

$= \frac{2310}{210} = 11$ ft

2.) Suppose that the amount in an account, 3 years after a principal of \$5000 was invested, is \$6050. What was the interest rate?

From our previous example,

$$A = P + Prt \quad (1)$$

where A is the amount in the account, P is the principal, r is the interest rate, and t is the time in years that the money has been invested. By the result of Example 3 we have

$A = P + Prt$

$-P \quad -P$

$A - P = Prt$

$r = \frac{A - P}{Pt}$

$r = \frac{6050 - 5000}{5000(3)}$

$r = 0.07$

7%

3.) Suppose that the amount in an account, 4 years after a principal of $3000 was invested, is $3720. What was the interest rate?

$$r = \frac{A - P}{Pt} = \frac{3720 - 3000}{(3000)(4)} = 0.06 \quad 6\%$$

You can now finish Hwk #15 Sec 2-6

Pages 113-114 Due tomorrow

Problems 1-5, 7, 12, 24, 26, 31, 33, 35, 39

IXL #6 - J.7 & J.8 due Friday, Oct. 5th at 4pm!