Alg-Geom Blend Lomac 2015-2016   Date _9/16_   due _9/17_   **Solving with unspecified** | **1.4B**
Constants

☐ **DO NOW –** On the back of this packet

Name _____

LO: I can solve equations in terms of unspecified
constants (letters instead of numbers).

☐ **(1)**   **Solving equations with numeric or letter constants use the same process**
pencil/pen *Exercise* **#1:** Solve each of the following problems for the value of *x*. In (b), write your answer in terms of the
unspecified constants (a) $5x+3=33$ (b) $ax+b=c$
Use the process from lesson 1.2B by listing operations and inverse operations and then solving

Equation	Operations (wrapping)	Inverse operations (unwrapping)	Solve the equation
A $5x+3=33$	_____ _____	_____ _____	
B $ax+b=c$	_____ _____	_____ _____	

☐ **(2)**   **Solving equations with numeric or letter constants use the same process**
pencil/pen *Exercise* **#2:** Solve the following two equations. In letter (b), leave your answer in terms of the constants *a*, *b*,
c and *d*.

Equation	Operations (wrapping)	Inverse operations (unwrapping)	Solve the equation
A $\dfrac{x+5}{2}-7=3$	_____ _____ _____	_____ _____ _____	
B $\dfrac{x+a}{b}-c=d$	_____ _____ _____	_____ _____ _____	

☐ **(3)** **Solving equations with letter constants**
pencil/pen

Exercise #3: When $2(x-h)+k=8$ is solved for x in terms of h and k, its solution is which of the following? Show the algebraic manipulations you used to get your answer.

(1) $4+h-k$ (3) $k-\dfrac{h}{2}+8$

(2) $h+4-\dfrac{k}{2}$ (4) $4-h+k$

| Equation	Operations (wrapping)	Inverse operations (unwrapping)	Solve the equation
A $2(x-h)+k=8$ _____ _____ _____	_____ _____ _____	

☐ **(4)** **Applications for solving equations with letter constants**
pencil/pen
Many times this technique is used when we want to **rearrange** a **formula** to solve for a **quantity of interest**.

Exercise #4: For a rectangle, the **perimeter**, P, can be found if the two dimensions of length, L, and width, W, are known.

(a) If a rectangle has a length of 12 inches and a width of 5 inches, what is the value of its perimeter? Include units.

W [rectangle figure]

L
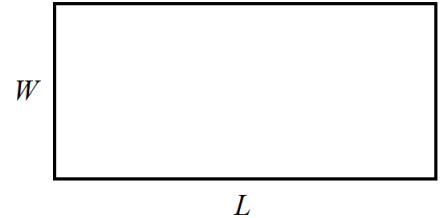
(b) Write a formula for the perimeter, P, in terms of L and W.

(c) Rearrange this formula so that it "solves" for the length, L. Determine the value of L when $P=20$ and $W=4$.

□ (3) **Solving equations with letter constants when x is on both sides**
pencil/pen

There is one last complication that we need to look at that is often challenging for students at all levels. Let's take a look at this in the next problem.

Exercise #5: Consider the equation $ax + b = cx + d$. We'd like to solve this equation for x. Let's start with the situation where we know the values of a, b, c and d.

(a) Solve: $8x + 1 = 5x + 22$　　　　　　　(b) Now solve: $ax + b = cx + d$

□ (4) **Solving equations with letter constants when x is on both sides**

Exercise #6: Which of the following solves the equation $ax - k = 3(x + h)$ for x in terms of a, k, and h. Show the manipulations to find your answer.

(1) $\dfrac{3h + k}{a - 3}$　　　　　　　　(3) $\dfrac{k + 3h}{a + 3}$

(2) $\dfrac{3a + k}{h - 1}$　　　　　　　　(4) $\dfrac{h + 3}{a + k}$

☐ (4) **Exit Ticket**

ON THE LAST PAGE

☐ (5) **Homework** BRING BACK SIGNATURE SHEET SIGNED AND . . .

pen or
pencil

FLUENCY

1. When $\dfrac{3(x-k)}{w} = 4$ is solved for x in terms of w and k, its solution is which of the following? Show the algebraic manipulations you used to get your answer.

(1) $\dfrac{4}{3}w + k$

(3) $k - \dfrac{4}{3}w$

(2) $k - \dfrac{3w}{4}$

(4) $\dfrac{4}{3} + w - k$

2. Solve the following equations for x. It may help to make up an equation with numbers and solve it to the side to make sure you are not making any mistakes.

(a) $a(x+b) - c = d$

(b) $\dfrac{e(x+c)}{b} = 2$

(c) $rx + qx - d = gc$

(d) $2ax - b = cx + d$

(e) $zx = 5g(2x - c)$

(f) $\dfrac{ax}{b} + \dfrac{cx}{d} = e$

CLASS SUPPLY LIST

Pencil   Eraser   Compass   Ruler   Highlighters   Pens   Markers   Scissors
Glue   Dry Erase Marker   Sheet Protector

Exit Ticket   **Name**_____ **Date** _____ _____ **Per_** _____   **1.4B**

Exit Ticket

(1) The LO (Learning Outcomes) are written below your name on the front of this packet. Demonstrate your achievement of these outcomes by doing the following:

(a) Solve the equation for the indicated variable (x): $A = \dfrac{x + y}{2}$ for x

(b) Solve the equation for the indicated variable (x): $\dfrac{3ax - n}{5} = -4$, for x.

DO NOW   **Name**_____ **Date** _____ **Per**_____   **1.4B**

(1) Solve ONE of the equations below. List the "operations" and the "inverse operations" if you have trouble getting started or get stuck.

(a) $-3(4r - 8) = -36$ (b) $6 = -3(x + 2)$

(2) An anagram is a rearrangement of letters. Describe what is supposed to make you smile in the cartoon.

Hint: What are the singers reading and singing?