CLASSWORK

STUDENT _____   GROUP_____

INSTRUCTOR _____   DATE _____

Math Lab Lesson #2 Classwork:

Expressions, Equations, and Identities

★**Video#1: A Common Factoring "Mistake"**

★**Example:** a) Factor the difference $25 - 60$ by finding a common factor

b) Factor $5x + 60$

c) Factor $32 - 8a$

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➡ 1. Factor:

$4x - 24$	$4a + 36$	$36 - 9c$

2. a) Find the mistake in the work below:

$$7a - 56 = 7(a - 9)$$

b) Fix the mistake by factoring $7a - 56$ correctly.

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3. a) Write an expression that could be factored as $6(b - 2)$

b) Write an expression that could be factored as $6(2 - b)$

c) Write an expression that could be factored as $-6(2 - b)$

d) Are your answers to a) and c) the same? Hmm…why would that be?

Video#2: Solving Equations Two Ways: Inverse Operations and Structure

Example: a) Solve the equation $4x - 3 = 25$

SOLUTION #1: USING INVERSE OPERATIONS	SOLUTION #2: USING STRUCTURE

b) Solve for k: $4k + 5 = 17 + 2k$

c) Let $P = 4k + 5$ and $Q = 17 + 2k$. If $P = Q$, then what is the value of k ?

1. Solve the equations below:

a) $$4x + 3 = 27$$	b) $$3a - 7 = 11$$
c) $$4b + 3 = -9$$	d) $$-3k + 5 = 26$$

2. Solve for a: $4a + 3 = 3a - 7$

3. Solve for b: $-5b + 20 = 3b - 4$

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4. Let $A = 4m - 1$ and $B = 17 + 2m$. If $A = B$, then what is the value of m ?

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5. Use **structure** to solve the following equations (try not to use inverse operations!)

a) $3x = 21$	b) $6m = 48$	c) $2a + 1 = 7$

⭐ <u>Video#3: Equations and Identities</u>

⭐ <u>**Example:**</u> When is an equations always true? When is it sometimes true? When is it never true?

1. The statement $12 - 2x = 2x$ is

A) Always true

B) Sometimes true

C) Never true

D) Not enough information

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2. The statement $12 - 6b = 6(2 - b)$ is

A) Always true

B) Sometimes true

C) Never true

D) Not enough information

1. The statement $15 - x = 2x$ is

A) Always true

B) Sometimes true

C) Never true

D) Not enough information

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2. The statement $5x + 15 = 5(x + 3)$ is

A) Always true

B) Sometimes true

C) Never true

D) Not enough information

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3. The statement $x + 2 = x + 3$ is

A) Always true

B) Sometimes true

C) Never true

D) Not enough information

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4. The statement $2x = 3x$ is

A) Always true

B) Sometimes true

C) Never true

D) Not enough information

(HINT: before you answer this one, try to "solve for x")

★Video#4: Equations in Two Variables

★**Example:** 1. Consider the equation $3x = 6y$

a) Solve the equation for x :	b) Solve the equation for y :
c) What is the value of $\dfrac{x}{y}$?	d) What is the value of $\dfrac{y}{x}$?

2. The statement $4(x + y) = 4x + 4y$ is

A) Always true

B) Sometimes true

C) Never true

D) Not enough information

3. The statement $4(x + y) = 4x + y$ is

A) Always true

B) Sometimes true

C) Never true

D) Not enough information

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1. Consider the equation $10a = 2b$

a) Solve the equation for a :	b) Solve the equation for b :
c) What is the value of $\dfrac{a}{b}$?	d) What is the value of $\dfrac{b}{a}$?

2. The statement $7(m + p) = 7m + p$ is

A) Always true

B) Sometimes true

C) Never true

D) Not enough information

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3. The statement $-2(x - y) = -2x + 2y$ is

A) Always true

B) Sometimes true

C) Never true

D) Not enough information

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4. Consider the equation $10(a - 5) = 10b - 50.$ What must be true of the ratio $\dfrac{a}{b}$ in order for this equation to be an identity? (Assume that $a \neq 0$ and $\neq 0$)

MATH LAB BOSS LEVEL

1. Consider the equation $10(a - 5) = 2b - 50$. What must be true of the ratio $\dfrac{a}{b}$ in order for this equation to be an identity? (Assume that $a \neq 0$ and $\neq 0$)

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2. The statement $4 - m = 4m$ is

A) Always true

B) Sometimes true

C) Never true

D) Not enough information

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3. The statement $3(a - b) = 3a - b$ is

A) Always true

B) Sometimes true

C) Never true

D) Not enough information

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4. Let $M = 5a - 3$ and $N = 7 + 3a$. If $M = N$, then what is the value of a ?