

Today's Plan:

Learning Target (standard): I will solve a linear system using the elimination method. I will describe the type of system and its solution.

Students will: Complete practice problems over previous concepts at the boards, put up homework problems on the board and make necessary corrections to their own work, take notes over new material and complete practice problems over new concepts.

Teacher will: Provide practice problems over previous concepts, check homework problems for accuracy and provide students feedback, describe and provide examples of new concepts and assign students assessment problems over new concepts.

Assessment: Board work, homework check and homework assignment

Differentiation: Students will work at the board, go over and correct homework at their seats, actively engage in lecture over new concepts, practice new concepts with the aid of other students and the teacher and complete homework assignment.

NAME _____

#62

BELL RINGER

1.) Use the distributive property to rewrite the expression without parenthesis.

$$(-3x - 7)(2)$$

$$-6x - 14$$

2.) Simplify $\frac{21x^4}{3xy}$

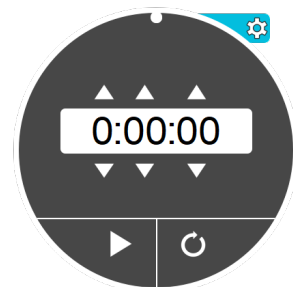
$$= \frac{\overset{7}{\cancel{21}} \cdot \cancel{x} \cdot \cancel{x} \cdot \cancel{x} \cdot \cancel{x}}{\cancel{3} \cdot \cancel{x} \cdot y} = \frac{7x^3}{y}$$

3.) Evaluate $6x - 2$ for $x = 2/3$.

$$6\left(\frac{2}{3}\right) - 2$$

$$4 - 2$$

②



Solve using the elimination method.

$$\begin{array}{r}
 10(6x - 3y = -15) \\
 3(-8x + 7y = 23) \\
 \hline
 \begin{array}{cc}
 \downarrow & \downarrow \\
 \textcircled{24} & \textcircled{21}
 \end{array}
 \end{array}
 \qquad
 \begin{array}{r}
 42x - 21y = -105 \\
 -24x + 21y = 69 \\
 \hline
 18x = -36
 \end{array}$$

independent $x = -2$

$$(-2, 1)$$

$$\begin{array}{r}
 6(-2) - 3y = -15 \\
 -12 - 3y = -15
 \end{array}$$

$$-3y = -3$$

$$y = 1$$

Solve using the elimination method.

$$\begin{array}{r}
 4x + 5y = 22 \\
 (5x - y = 13) \cdot 5 \\
 \hline
 \begin{array}{cc}
 \downarrow & \downarrow \\
 \text{LCM } 20 & \text{LCM } 5 \\
 +/- & +/-
 \end{array}
 \end{array}
 \qquad
 \begin{array}{r}
 4x + 5y = 22 \\
 25x - 5y = 65 \\
 \hline
 29x = 87
 \end{array}$$

$$29x = 87$$

$$x = 3$$

independent
 $(3, 2)$

$$5(3) - y = 13$$

$$15 - y = 13$$

$$-y = -2$$

$$y = 2$$

Solve using the elimination method.

$$\begin{array}{l} 4(3x + 7y = 16) \\ -3(4x - 3y = 9) \end{array}$$

$$\begin{array}{l} 4x - 3(1) = 9 \\ 4x - 3 = 9 \\ 4x = 12 \\ x = 3 \end{array}$$

$$\begin{array}{l} 12x + 28y = 64 \\ -12x + 9y = -27 \\ \hline \end{array}$$

$$37y = 37$$

$$y = 1 \text{ independent} \\ (3, 1)$$

Solve using the elimination method.

$$\begin{array}{l} 3p + 4q = 4 \\ -2(5p + 2q = 16) \end{array}$$

LCM 15 \downarrow LCM 4
+/- +/-

independent
(4, -2)

$$\begin{array}{l} 3p + 4q = 4 \\ -10p - 4q = -32 \\ \hline \end{array}$$

$$-7p = -28$$

$$p = 4$$

$$3(4) + 4q = 4$$

$$12 + 4q = 4$$

$$4q = -8$$

$$q = -2$$

Solve using the elimination method.

$$6n + 8c - 4 = 0 \quad (6n + 8c = 4) \times 6$$

$$9n + 10c - 7 = 0 \quad (9n + 10c = 7) \times 4$$

$$\begin{array}{c} \downarrow \\ \text{LCM } 36 \\ +/- \end{array} \quad \begin{array}{c} \downarrow \\ \text{LCM } 40 \\ +/- \end{array}$$

$$\begin{array}{r} 36n + 48c = 24 \\ -36n - 40c = -28 \\ \hline \end{array}$$

$$\begin{array}{l} 8c = -4 \\ c = -\frac{1}{2} \end{array}$$

independent
 $(-\frac{1}{2}, \frac{4}{3})$

$$6n + 8(-\frac{1}{2}) = 4$$

$$6n - 4 = 4$$

$$6n = 8$$

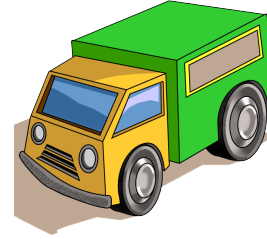
$$n = \frac{4}{3}$$

Solving Word Problems using Elimination:

- define two variables and what they represent
- use the two variables and the given information to write two equations
- solve the system using elimination
- label answers not as ordered pairs, but as two values with appropriate units

Washing 2 cars and 3 trucks takes 130 minutes. Washing 2 cars and 5 trucks takes 190 minutes. How long does it take to wash each type of vehicle?

① $x = \text{time to wash a car}$
 $y = \text{time to wash a truck}$



② $2x + 3y = 130$
 $-1(2x + 5y = 190)$

$2x + 3y = 130$
 $-2x - 5y = -190$

$-2y = -60$

$y = 30$

$2x + 3(30) = 130$

$2x + 90 = 130$

$2x = 40$

$x = 20$

\therefore It takes 20 minutes to wash a car & 30 minutes to wash a truck.

A concessions stand sold a total of 138 small and large popcorns. A small popcorn costs \$2.50, and a large popcorn costs \$4.00. Total popcorn sales were \$466.50. How many large popcorns were sold?

① $x = \text{small popcorn}$
 $y = \text{large popcorn}$



② $x + y = 138$
 $2.5x + 4y = 466.5$

③ $-4x - 4y = -552$
 $2.5x + 4y = 466.5$

$-1.5x = -85.5$

$x = 57$

$57 + y = 138$

$y = 81$

④ \therefore There were 57 small popcorns & 81 large popcorns sold.

Assignment:

Elimination with Multiplication
#2-5

AND

Applying Systems of Linear Equations
#1,3