## Unit 5 Lesson 15: Solving More Systems

### 1 Algebra Talk: Solving Systems Mentally (Warm up)

#### Student Task Statement

Solve these without writing anything down:

$\left\{\begin{matrix}x=5\\y=x−7\end{matrix}\right.$

$\left\{\begin{matrix}y=4\\y=x+3\end{matrix}\right.$

$\left\{\begin{matrix}x=8\\y=-11\end{matrix}\right.$

### 2 Challenge Yourself

#### Student Task Statement

Here are a lot of systems of equations:

A $\left\{\begin{matrix}y=4\\x=-5y+6\end{matrix}\right.$

B $\left\{\begin{matrix}y=7\\x=3y−4\end{matrix}\right.$

C $\left\{\begin{matrix}y=\frac{3}{2}x+7\\x=-4\end{matrix}\right.$

D $\left\{\begin{matrix}y=-3x+10\\y=-2x+6\end{matrix}\right.$

E $\left\{\begin{matrix}y=-3x−5\\y=4x+30\end{matrix}\right.$

F $\left\{\begin{matrix}y=3x−2\\y=-2x+8\end{matrix}\right.$

G $\left\{\begin{matrix}y=3x\\x=-2y+56\end{matrix}\right.$

H $\left\{\begin{matrix}x=2y−15\\y=-2x\end{matrix}\right.$

I $\left\{\begin{matrix}3x+4y=10\\x=2y\end{matrix}\right.$

J $\left\{\begin{matrix}y=3x+2\\2x+y=47\end{matrix}\right.$

K $\left\{\begin{matrix}y=-2x+5\\2x+3y=31\end{matrix}\right.$

L $\left\{\begin{matrix}x+y=10\\x=2y+1\end{matrix}\right.$

1. Without solving, identify 3 systems that you think would be the least difficult to solve and 3 systems that you think would be the most difficult to solve. Be prepared to explain your reasoning.
2. Choose 4 systems to solve. At least one should be from your "least difficult" list and one should be from your "most difficult" list.

### 3 Five Does Not Equal Seven

#### Student Task Statement

Tyler was looking at this system of equations:

$\left\{\begin{matrix}x+y=5\\x+y=7\end{matrix}\right.$

He said,  "Just looking at the system, I can see it has no solution. If you add two numbers, that sum can’t be equal to two different numbers.”

Do you agree with Tyler?



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