Name:

Date:

School:

Facilitator:

8.02 Solving Systems of Equations by Substitution

**Solve each of the following systems of equations using the substitution method. Write your final answer in the blanks provided.**

|  |  |  |
| --- | --- | --- |
| 1. |  | Solution: (, ) |
|  | **Show work here:** |  |
|  |  |  |
|  | | |
| 2. |  | Solution: (, ) |
|  | **Show work here:** |  |
|  |  |  |
|  | | |
| 3. |  | Solution: (, ) |
|  | **Show work here:** |  |
|  |  |  |
|  | | |
| 4. |  | Solution: (, ) |
|  | **Show work here:** |  |
|  |  |  |
|  | | |
| 5. |  | Solution: (, ) |
|  | **Show work here:** |  |
|  |  |  |
|  | | |
| 6. |  | Solution: (, ) |
|  | **Show work here:** |  |
|  |  |  |

**7. Matthew and Jake were comparing answers on their homework. The problem asked them to solve the system of equations below using the substitution method.**



**Below is the work for each student. Use this work to answer the questions that follow.**

**Matthew’s Work**

 **The solution to this system is (12, -1)**

**Using equation (1), I solved for *x*:**

*x* + 4*y* = 8

*x* = -4*y* + 8 (Subtracted -4*y* on both sides)

**Using equation (2), I substituted for *x*.**

2(-4*y* + 8) – 5*y* = 29

-8*y* + 16 – 5*y* = 29 (Distributed 2 to -4*y* and 8)

-13*y* + 16 = 29 (Combined like terms -8*y* and -5*y*)

-13*y* = 13 (Subtracted 16 on both sides)

*y* = -1 (Divided on both sides by -13)

**Then, I substituted *y* = -1 into the first equation and solved for *x*. I knew I could use *x* = -4*y* + 8.**

*x* = -4(-1) + 8

*x* = 4 + 8

*x* = 12

**Jake’s Work**

 **The solution to this system is (36, 7)**

**Using equation (1), I solved for *x*:**

*x* + 4*y* = 8

*x* = 4*y* + 8 (Subtracted -4*y* on both sides)

**Using equation (2), I substituted for *x*.**

2(4*y* + 8) – 5*y* = 29

8*y* + 8 – 5*y* = 29 (Distributed 2 to -4*y* and 8)

3*y* + 8 = 29 (Combined like terms 8*y* and -5*y*)

3*y* = 21 (Subtracted 16 on both sides)

*y* = 7 (Divided on both sides by -13)

**Then, I substituted *y* = 7 into the first equation and solved for *x*. I knew I could use *x* = 4*y* + 8.**

*x* = 4(7) + 8

*x* = 28 + 8

*x* = 36

(A) One of the students’ work is incorrect. Which student has the incorrect answer? State which student has the incorrect answer and explain why he has the incorrect answer.

(B) How can the incorrect student have checked his work? There are two possibilities for this answer.