SECONDARY MATH II // MODULE 3

SOLVING QUADRATICS & OTHER EQUATIONS – 3.12H

3.12H

READY, SET, GO! Name Period Date

READY

Topic: Solving systems of linear equations

Solve each system of equations using substitution.

1. $\begin{cases} y = 3x \\ y = -2x - 15 \end{cases}$

$3x = -2x - 15$

2. $\begin{cases} 3x + y = 21 \\ y = -2x - 15 \end{cases}$

3. $\begin{cases} 3x + 2y = 7 \\ x + 2y = -3 \end{cases}$

$x = -3 + 2y$

$3(-3 + 2y) + 2y = 7$

$-9 + 6y + 2y = 7$

$8y = 16$

$y = 2$

$x = -3 + 2(2)$

$x = 1$

(1, 2)

Solve each system of equations using elimination.

4. $\begin{cases} 5x - y = 13 \\ -2x + y = -1 \end{cases}$

$3x = 12$

$x = 4$

$y =$

5. $\begin{cases} 3x + y = 21 \\ -3x + 5y = -3 \end{cases}$

6. $\begin{cases} 3x + 2y = 7 \\ x + y = 2 \end{cases}$

$-2(x + y = 2)$

$3x + 2y = 7$

$-2x - 2y = -4$

$x = 3$

$3 + y = 2$

$-3 \quad -3$

$y = -1$

(3, -1)

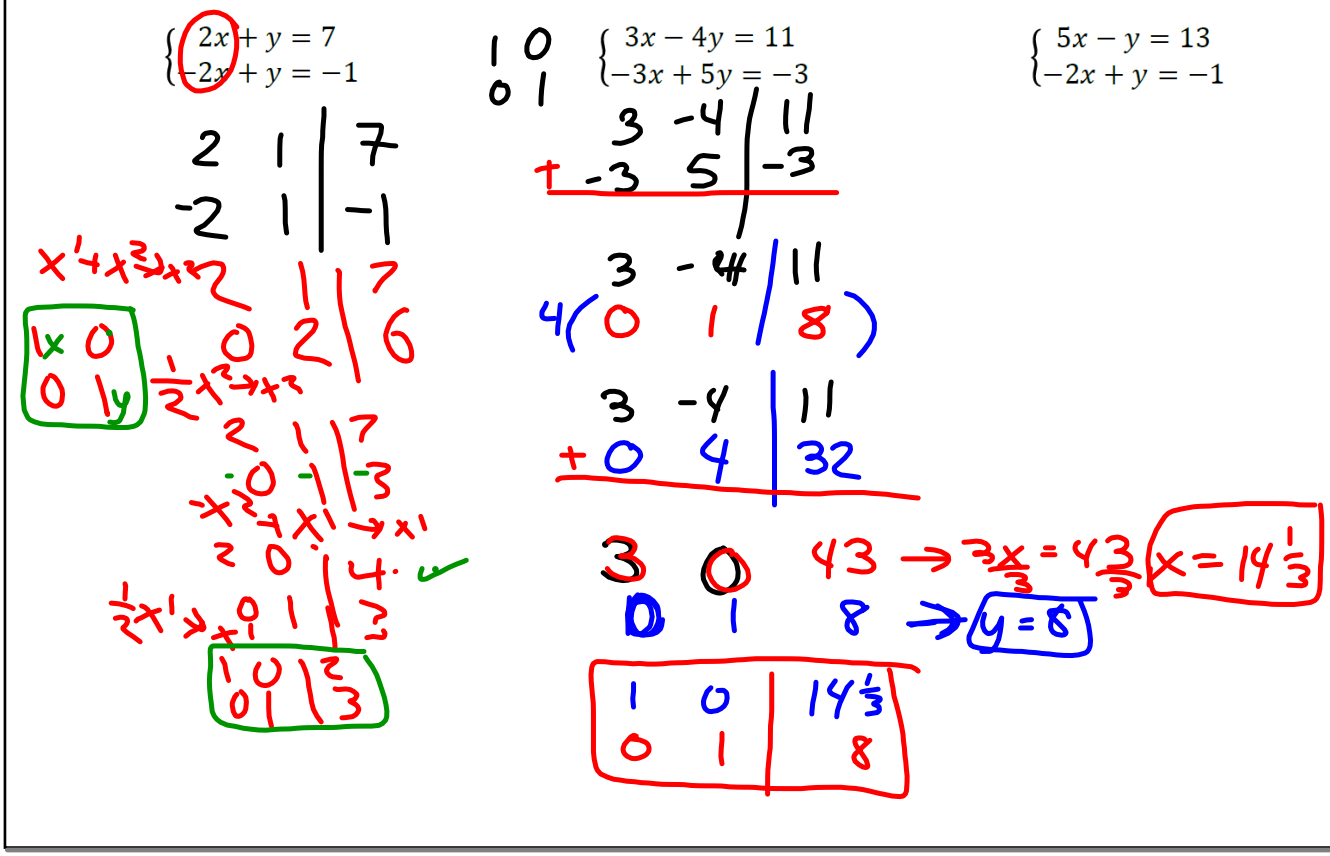
A5 notes

Create an augmented matrix for each system of equations and then use row reductions to solve the system.

7. $\begin{cases} 2x + y = 7 \\ -2x + y = -1 \end{cases}$

8. $\begin{cases} 3x - 4y = 11 \\ -3x + 5y = -3 \end{cases}$

9. $\begin{cases} 5x - y = 13 \\ -2x + y = -1 \end{cases}$



A7 notes

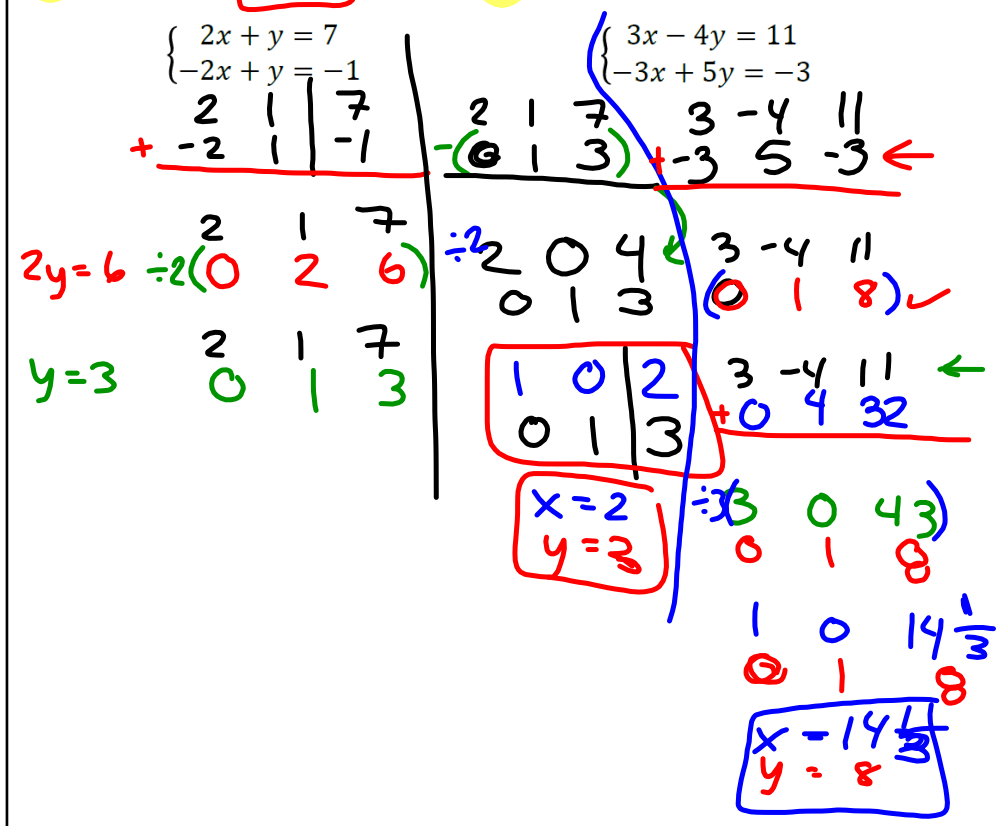
Create an augmented matrix for each system of equations and then use row reductions to solve the system.

$\begin{bmatrix}1&0\\0&1\end{bmatrix}$ goal

7. $\begin{cases}2x+y=7\\-2x+y=-1\end{cases}$

8. $\begin{cases}3x-4y=11\\-3x+5y=-3\end{cases}$

9. $\begin{cases}5x-y=13\\-2x+y=-1\end{cases}$



SET

Topic: Operations with imaginary numbers

Perform the indicated operations on the complex numbers.

10. $(3 + 4i) + (2 - 5i)$

11. $(6 - 4i) - (7 + 2i)$

12. $3(5 + 2i)$

13. $(9 - 2i)(1 + 3i)$

14. $4(3 - 2i) - (5 + 3i)$

15. $(2 - 5i)(2 + 5i)$

Use the conjugate of each denominator to rationalize the denominators and write an equivalent fraction.

16. $\dfrac{3 - 5i}{2 + 5i}$

17. $\dfrac{6 + 7i}{4 - 3i}$

18. $\dfrac{2 - 3i}{1 - 6i}$

skip, next time.

Find the modulus for each complex number.

19. $3 - 5i$

20. $4 - 3i$

21. $-4 + 3i$

22. If the graphical representation of the operations between two complex numbers results in a value along the y-axis or imaginary axis, what must be true about the two complex numbers?

23. If the graphical representation of the operations between two complex numbers results in a value along the x-axis or real number axis, what must be true about the two complex numbers?

GO

Topic: Solving Quadratics

24. List the strategies that can be used to solve quadratic equations. Explain when each of the strategies would be most efficient. Give an example of a quadratic that would be most efficiently solved for each.

Solve the quadratics below using an appropriate method.

25. $x^2 + 9x + 18 = 0$

26. $x^2 - 2x - 3 = 0$

27. $2x^2 - 5x + 3 = 0$

28. $(x - 2)(x + 3) = 0$

X = 2, -3

29. $10x^2 - x + 9 = 0$

a b c 1 -360

$$x = \frac{1 \pm \sqrt{(-1)^2 - 4(10)(9)}}{2(10)}$$

$$\frac{1 \pm \sqrt{-359}}{20}$$

$$\frac{1 \pm \sqrt{359}\,i}{20}$$

30. $(x - 2)^2 = 20$