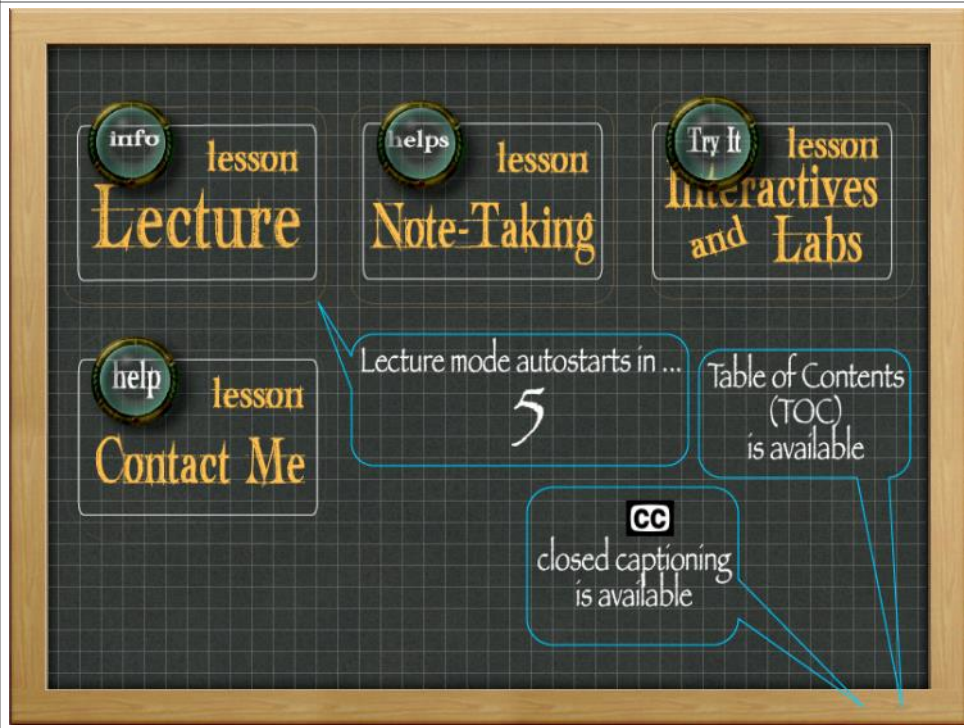


# More on Systems of Three Equations

Thursday, January 19, 2012  
5:36 PM

Slides



Notes

## More on Systems of 3 Equations

$$\begin{cases} 2x + 3y = -4 \\ x - 2z = -3 \\ 2y - z = -6 \end{cases}$$

One variable out of the three is missing.

$2x + 3y + 0z = -4$	$3y + 4z = 2$	$2x + 3(-2) = -4$
$(-2)1x + 0y - 2z = -3$	$(+4)2y - z = -6$	$2x - 6 = -4$
$2x + 3y + 0z = -4$	$3y + 4z = 2$	$6 \quad 6$
$-2x + 0y + 4z = 6$	$8y - 4z = -24$	$2x = 2$
<hr style="width: 100%;"/>	<hr style="width: 100%;"/>	$x = 1$
$3y + 4z = 2$	$11y = -22$	$1 - 2z = -3$
	$y = -2$	$z = 2$

In today's continued work on systems of three equations, we will examine what to do if they don't all have the same variable. It is essentially the same as before, you can use substitution or elimination, but you need to place a 0 coefficient in for the missing variables for each equation as you need it.

We will use elimination. We can multiply one of the equations by -2 to eliminate the x. That gives us an equation that still have two variables, so we will use elimination again using this one and the other equation from the system we have not yet used. We can multiply by 4 to get rid of the z. Y is -2.

Now we will substitute the z in to one of the equations. That gives us x = 1.

Now we will plug that in and that will give us z. Z is 2.

$$\begin{cases} 3y - 2z = -12 \\ 2x - 3z = -5 \\ x - 2y = 6 \end{cases}$$

$$(2) 3y - 2z = -12$$

$$(3) x - 2y = 6$$

$$6y + 0x - 4z = -24$$

$$-6y + 3x + 0z = 18$$

$$3x - 4z = -6$$

$$(2) 3x - 4z = -6$$

$$(-3) 2x - 3z = -5$$

$$(2) 6x - 8z = -12$$

$$(-3) -6x + 9z = 15$$

$$z = 3$$

$$2x - 3(3) = -5$$

$$2x - 9 = -5$$

$$2x = 4$$

$$x = 2$$

$$x - 2(y) = 6$$

$$2 - 2(y) = 6$$

$$-2(y) = 4$$

$$y = -2$$

Congratulations!  
You have completed  
this topic

Give us feedback about  
this lesson if you wish...

