True or False by Simran.

a. 19 + 15 = 34
True. I took 1 from 15 and added to 19 to make it 20. It is easier to add to a friendly number like 20. So, the sum is 34.

b. 34 = 19 + 15
True. The equation a. is true. This is the same equation as the previous one but flipped around. If both sides of the equation add up to the same, then it does not matter how the equation is written.

c. 19 + 15 = 15 + 19
True. Exact same addends are on both sides of the equation. This is the commutative property of addition. 15+19 is the same as 19+15, it does not matter if the addends switch places or commute around.

d. 34 = 34
True. The same number is on both sides of the equation.

e. 19 + 15 = 34 + 0
True. If both sides of the equation add up to be the same, then the equation is balanced.

f. 19 + 15 = 0 + 34
True. Similar to the previous equation (especially e.), if both sides of the equation add up to the same, then the equation is balanced. 19+15 equals 34, and on other side of the equation 0+34 equals 34. Also, 0+34 is the same as 34+0

g. 34 = 16 + 17
False. If you take 3 from 16 and add it to 17, then you get 20+13 which is 33. So, both sides of the equation are not balanced. Another strategy is that if you add 6+7 from the ones place, you would get 13 which would put 3 in the ones place. The other side of the equations has a number that has 4 in the ones place. So, I know that both sides of the equation are not balanced.

h. 19 + 15 = 21 + 13
True. Just like this previous equation, 19+15 equals 34. I took 1 from 21 and added to 13 to make it 14. Now 20+14 is 34. Another strategy is to add the ones to get 4 and add the tens to get 30, so the sum is 34. Both sides of the equation are the same, so the equation is true.

i. 19 + 15 = 20 + 16
False. We know that 19+15 is 34 but 20+16 is 36. So, both sides of the equations are not equal.

j. 19 + 15 = 22 + 18
False. I know that 22+18 is 40 but the other side of the equation equals 34. So this equation is not true.

k. 19 + 15 = 34 + 15
False. We know that left side of the equation is 34. On the right side of the equation, if we add something to 34, the sum will be a big number. So, both sides of the equation are not the same.

l. 15 + 19 = 20 + 14
True. 15+19 is 34. 20+14 is also 34. So both sides of the equation are the same.

a. 346 + 289 = 349 + 286
True. I notice that on the left side there is 346 but on the right side, there is 349 which is 3 more than 346. On the left side there is 289 but on the right side there is 286 which is 3 less than 289. If we have a number and we add 3 to it and then subtract 3 from it, it's same as adding 0. So the sum on both sides of the equation is the same.

b. 727 + 581 = 581 + 727
True. The addends on both sides of the equation are the same. This is another example of commutative property of addition.

c. 478 - 192 = 480 – 194
True. 478 is 2 less than 480 and 192 is 2 less than 194. So the difference on both sides remains the same. We can do this because this is subtraction and the difference on both sides remains the same.

d. 831 - 344 = 841 – 334
False. 831 is 10 less than 841 and 344 is 10 more than 344. We should be decreasing or increasing both subtractants by the same number for the difference to remain the same.

e. 346 + 289 = 345 + 288
False. I notice that 346 is 1 greater than 345 and 289 is 1 greater than 288. As this is addition, the sum on the left side is 2 greater than the sum on the right side.

f. 727 + 581 - 581 = 727
True. If you add 581 and then subtract 581, it's the same as adding or subtracting 0. So, both sides are equal.

g. 831 - 344 + 346 = 831
False. 346-344 equals 2. So, on the left side of the equation we get 833.

h. 169 + 672 = 2041
False. I know even without calculating that the addends on the left side will be around 900 or less. So this equation is not true.