**

Will start by combining R2 and R3 into their equivalent resistance to determine the effect of Vs and R1. As R2 decreases R23 also decreases. This increases the current in the circuit causing the power associated with Vs and that associated with R1 to increase. For Vs, power equals current times voltage and for R1, power equals current squared times R1. As R2 decreases the square of i2 increases faster that R2 decreases causing power to increase for R2. Decreasing R2 causes the voltage across R3 to decrease thereby current through and power consumption by R3 are also decreased.

**

As R2 decreases in resistance the total resistance of the circuit decreases. This in turn causes the current to increase according to current equals voltage divided by resistance. Because current is increasing and voltage is fixed for Vs, power increases according to power equals voltage plus current. Current in R1 increases as it is positioned to have the full current from the circuit pass through it. Therefore, it's power also increases according to power equals current times voltage. R3 is in parallel with R2 so that current divides. As the current more easily passes through R2 current in R3 decreases causing the power in R3 to decrease and increase in R2.

**

Vs and R1 are going to share the same current as they are both in series and the potential difference of both items are unchanged the power associated with them is constant. Because R2 and R3 are in pararallel the voltage of each are equal even when R2 drops, however the total voltage will be lower in each resistor as their combined resistance drops and current will change as well. The power with both R2 and R3 will lower.

**

Voltage equals current times power. As the resistance decreases the voltage decreases proportionally assuming the current through the resistance doesn't change. The power associated with the coltage source increases because the current flowing from lower to higher potential increases and the voltage drop does not change because it is an ideal source. The power dissipated by R1 would increase because there would be more current flowing through. The power dissipated by R2 would decrease because having a resistor of lower ohms in parallel with it would decrease the current flowing through R2. The voltage drop across R2 and R3 are the same and R3 will have more current through it causing R2 to dissipate less power than before.

**

As R2 drops in resistance the overall current of the system increases making the power in other elements greater. This drop causes less power in element R2 as well.

**

From the equation for the total resistance of the circuit we can see that as R2 decreases, the whole denominator increases which means the parallel resistors will have less and less of an effect on the total resistance. Using Ohm's law voltage equals current times total resistance. We see that a smaller R2 will give us a smaller total resistance which will give us a larger current I, in the circuit. If an I is larger we can see by the equation power equals current times voltage that the power across the elements should increase as the value of R2 decreases.

**

If R2 decreases then the total resistance Req of the system also decreases. If the resistance in the circuit decreases, then the current throughout the system increases due to the relationship of the resistance and current in Ohm's law, that is, voltage equals current times voltage. So if the current of the system increases, that means the power associated with VS,R1 an R2 increase as well due to power equals current times voltage. If R2's value decreases, then more of the current will travel through R2, rather than R3 because current travels in the path of least resistance. Therefore, the power associated with R2 will increase. The power associated with R3 will also increase because although more current flows through R2 compared to R3, the amount of the total current increases. So R3 should also receive more current if R2's value decreases.

**

While R2 decreases, there will be an increase of current through VS, R1 and R2. R3 however will not have increased current because the voltage drop and resistance remain constant, therefore current will not change. Since the total resistance is reduced, there will be more current flowing through VS and R1. Because of this increased current and unchanged voltage, power will increase by power equals voltage times current.

**

Power equals current times voltage. As R2 gets smaller, the total resistance of the circuit gets smaller, therefore the current gets larger, meaning the power increases.

**

When the resistance is lower, the current increases. As seen in power equals current times voltage, as the current rises, so does the power. Thusly, the power is Vs rises. Same is true in R1 where power equals current squared times resistance, as the current increases so does the power. R2 and R3 work in parallel, meaning that their current varies but the power still rises. Current equals voltage divided by resistance, as R gets closer to zero (without equal zero) current goes to infinity, meaning that less resistance means more current, and more current with a fixed voltage means more power.

**

As R2 decreases, the current will increase, meaning more power at Vs,R2 and R1, however since the resistance of R2 is decreasing, more current will flow through it. R3 on the other hand remains the same, making R2 the path of less resistance. With that in mind, I believe the increase in current will flow through R2 and leave R3 with the same current, meaning that R3 will have a steady amount of power.

**

As R2 gets smaller more power will move through R2. Because of this and KCL I know the power through R3 will decrease until when R2 = 0 then then the power of R3 will equal zero, as

R2 will be a short. As R2 decreases so will the total resistance of the circuit, this means the current will go up. Given this the power across R1 and VS will increase.

**

As the resistance of R2 decreases, the equivalent resistance of the circuit as a whole decreases as well, causing a greater current to leave Vs (voltage equals current times resistance, and the voltage of Vs remains constant). Therefore, Vs supplies greater power (power equals current times voltage, the voltage of Vs remains constant). Simultaneously, R1 dissipates more power due to the greater current flowing through it. The voltage drop across R2 and R3 may be altered, but will remain equal as (they are in parallel). As R2 resistance decreases, more current will flow through it as opposed to R3. Therefore, the power dissipated by R3 decreases as less current flows through it and its voltage doesn't rise. The power dissipated by R2 may increase, seeing as the current across it is increasing but its resistance is also decreasing (power equals current squared times resistance), but current affects power more.

**

As R2 decreases, R3 will receive less current meaning that it will dissipate less power. As R2 further decreases, more current will flow through R2, meaning it will dissipate more power. As the current increases, R1 will have to dissipate more power and Vs will have to supply more.

**

As R2 decreases, the source's current increases, and since Vs is constant, the power out of Vs increases. Since this current also goes through R1, I can see what happens to the voltage drop as R2 decreases. As the source current increases, the voltage drop across R1 increases, so the power dissipated in R1 also increases. Since decreasing R2 increases current overall but decreases the potential difference through the parallel elements R2 and R3, it may decrease or increase the power through them.

**

As R2 decreases, the power associated with R3 would decrease since the current would decrease. With less resistance down the R2 path would result in more current down the R2 path and less down the R3 path. Since R2 decreases the combined resistance within the parallel circuit would decrease as well. With R23 decrease the total resistance in the circuit would decrease. With less resistance and Vs doesn't change voltage current would have to increase. With more current the power with Vs would increase and the power with R1 would increase.

**

Power is associated with voltage and current. Voltage will not change, so a decrease in total resistance will increase the current through the circuit. Vs will supply the same voltage but more power because the total current has increased. R1 will dissipate more power because of the increase current. As R2 decreases, the current passing through will increase and the power dissipated will increase. R3 will receive less current because it is parallel to the decreasing resistance, the power dissipated on R3 will decrease.

**

Starting with comparing R2 and R3 which are in parallel meaning they will have the same voltage drop. Voltage equals current times resistance, so if resistance has to decrease it would therefore decrease voltage drop of R2. This would therefore decrease voltage and power drop of R3 as well. To look at the effects on R1 and Vs I will combine both R2 and R3. This would always be smaller than the smallest resistance, so if R2 was to decrease it would decrease R23. This would increase total current in the series and the voltage drop across R1 would be slightly higher. Increasing power in both Vs and R1.

**

As R2 decreases, so does the total resistance. Voltage equals current times resistance. As the total resistance drops, the current of the circuit increases. Voltage remains constant because it is an ideal source. Power equals voltage times current. Because V is a constant and I is increasing as R2 decreases, the power of Vs, and R1 will all increase in magnitude. As R2 approaches zero Ohms, less and less current goes through R3 as it is shorted out so its power decreases in magnitude.

**

As R2 decreases, the current would decrease through the other components. Voltage equals current times power. The current through R3 would decrease the most since it is in parallel with R2. Since voltage does not increase, the equation must still balance. Since resistance increases, current must decrease.

**

So we find that when R2 goes to zero, the equivalent resistance is left as one divided by R3. This to me say that the resistance equivalent is reduced so it will take more power because as equivalent resistances is reduced by changing R2.

**

Assuming all components are ideal, lessening the resistance in R2 will mean that the power associated with R2 will be greater as making the resistance less will make the current larger, and as such the power will be greater (power equals current times voltage). The power associated with Vs, R1, R3 do not change.

**

Since R2 decreases that means more current will go through R2. That indicate that less current will travle through R3. Therefore, the power on R2, as R2 decreases, will increase.

**

If the resistance of R2 decreases the power associated with R2 will go up because voltage equals current times resistance. The resistance goes down so current has to go up, then power equals voltage times current goes up. The power associated with R3 will go down because the voltage drop has to equal the rise of R2.

**

As R2 goes down voltage will remain the same and current will get higher in due to less resistance meaning higher power due to power equals current times resistance with more current. Because more current is being used on the other direction of node 2 less current will go through R3 direction due to KCL meaning voltage will also be lower due to voltage equals current times resistance over changing power to be similar. Vs and R1 due to voltage unchanged the voltage and current at node 1 and R1 will not have changed meaning no change in power.

**

First I will simplify the circuit by making R2 and R3 their equivalent resistance. The I will simplify the circuit down to just resistor by adding R1 and the parallel combination of R2 and R3 together. Now that we have the equivalent resistance we can use that to find the current going through R1 and Vs using Ohm's law. With this current we can find the voltage drops for R1 and the parallel combination of R2 and R3. Because we know the voltage drops for R2 and R3 are the same we can use Ohm's law to find both of their voltage drops. Then with those voltage drops for R2 and R3 we can again use Ohm's law to find the current through R2 and R3. Now that we solved the circuit we can plug it into the power equation.

**

The power associated with R1 and R3 and Vs will stay relatively constant because the voltage and resistance has not been changed. The power of R2 will decrease because resistance and power are directly related. As resistance decreases, so will power. The voltage drop and current will also be affected by the decrease in resistance. To solve the problem, I'd start by collapsing the circuit -- combining resistors 2 and 3 (since they are in parallel to each other) and add resistor 1 (since it is in series). Then solve for the current and voltage drop at each node as I slowly expand back to the original circuit. Then I have the values needed to compute the power at any point in the circuit.

**

If the resistance of R2 decreases, we know that the voltage drop across it will decrease due to Ohm's law (voltage equals current times resistance). We also know that the power absorbtion will be less because power equals current times resistance. This being known, energy must be conserved. This means that more power will have to be absorbed by the other resistors in the circuit provided that the voltage source remains the same. The power from the voltage source will remain the same, if all elements continue to function properly.

**

As the resistance of R2 is decreased, the current through Vs and R1 will increase because when using Kirchhoff circuit law and substituting with Ohm's law, you will end up with an equation looking like current equals voltage divided by R2 which as R2 gets smaller, the fraction voltage divided by R2 will get larger in value. Meaning current will increase. Note: The voltage throughout the circuit will not change.

**

Power equals current times voltage. Current equals voltage divided by resistance. Therefore, power equals voltage squared divided by resistance. The values of power within the different elements of the circuit will increase. This is due to the overall resistance of the circuit declining.

**

Power equals voltage times current. Using Ohm's law to find current equals voltage divided by resistance. R2 and R3 are in parallel. The parallel combination of R2 and R3 is added to R1 as they are in series. Using Vs divided by the equivalent resistance, calculate current and then calculate power with voltage times current. As R2 decreases the power should increase because current will increase as the resistance decreases. As R2 goes to zero Ohms the equation for current becomes voltage divided by the sum of R1 and R3 and the power would have increased because current will be greater than current equals voltage divided by the equivalent resistance.

**

As R2 decreases, its current increases because V=IR, and its voltage drop will remain the same. If I2 increases, it draws the extra current from what would've traveled through R3. Since R3 is getting less current, its power decreases because power equals current squared times R. As R2 decreases, the equivalent resistance increases. If the total resistance increases than the net current decreases. The net current runs through R1, so if that decreases, the power associated with R1 also decreases. If this is the case, the power associated with the voltage source also decrease, because if the circuits components are absorbing less power, the circuit also supplies less power.

**

I'm not sure how the resistance R2 decreases in this circuit but if it does I would assume that there would be more power available. If R2 went from 10 ohms to 5 ohms you would have 3.3 Ohms. The math shown illustrates that the total resistance dropped so more power would be available.

**

If R2 decreases R3 will also decreases because the wired in pirrelel. However, R1 wired in series with R23 so nothing will change in R1. Solving for Vs using Ohm’s law when R2 decreases the voltage also decreases V=IR, so the power associate with VS wil decrease P=IV.

**

First of all, we know resistors always apsorbing power so all the three resistors are apsorbing, the source must be providing. Voltag will be same in R2, R3 but the current will not be. We can add R3 and R2 together R2||R3 and then R1+R2||R3 and now we can use P=IV. If we know the value and also as in video we can use homm’s law. If R2 decreas the power will be decreas as well according to P=I2R.

**

When R2 is decreased, the flow of current changes, and nothing else. As R2’s resistance heads toward zero, the current through it increases, and the current through R3 decreases.

**

The supply of power comes from VS or the voltage source. R1 will decrease the amount of power by resisting to the voltage. At the node after R1, the current is divided between two resistors, one of which remains constant while the other’s resistance decreases. The lower the resistance of R2, the closer it is to acting like a wire, letting the current, and, power, bypass R3 to get back to the voltage source. Power will take the path of least resistance.

**

As the resistance of R2 decreases, the combined resistance in the parallel branches increase this causes the total circuit's resistance to increase. And, because V=IR and "Vs" is constant, then this means the current in the entire circuit will decrease. Relating this to P=VI, the power in the overall circuit would be less than it would be if R2 didn't decrease. The power through R1 would decrease. The power through Vs would decrease. The power through R2 would increase due to the current increasing, the power through R3 would decrease too because more current is flowing through the R2 branch of the parallel circuit loop dur to current wanting to flow in the path of least resistance.

**

As the resistance of R2 decreases, the power associated with the circuit increases. This is because as R2 decreases, the equivalent resistance R23 decreases because resistors two and three are connected in parallel. This means the equivalent resistance for the whole circuit R123 decreases as well, resulting in more current flowing through the circuit and therefor more power associated with each element.

**

As R2 decreases it overall increases the equivalent resistance for the circuit therefore increasing the current. Therefore, power being associated with current and voltage, would rise at Vs as Vs is a power provider in this circuit and an increase in current leads to an increase in power provided. Similarly, if only the current is increasing, R1 would begin to dissipate more power as R2 decreased however unlike Vs, R1 is absorbing power not providing. Both R2 and R3 have the same potential difference as that are in parallel but pull different currents based on their resistance. As R2 decreases, it pulls more current and will increase it power absorption while R3 will loose current and decrease its power absorption.

**

As the resistance R2 decreases the equivalent resistance should decrease since it is in parallel with R3 and then in series with R1, therefore the current leaving the voltage source and through R1 will be greater since voltage is the product of current and resistance. So if the current goes up so will the power dissipated by R1. The power provided by the voltage source will increase since more current is going through it. The power consumed through R2 will increase as well since there is less resistance than before, and then finally the power dissipated through R3 will also increase since the resistance is the same and the current is greater.

**

Power depends on the relationship of current and voltage which are both proportional. As R2 decreases to zero, the current will no longer split toward R3, as R2 will have less resistance. The voltage drops across R2 and R3 are the same, but their respective currents are not, so as R2 decreases, its current will increase while its voltage drop remains constant, so the power consumed would be R1=R2=R3, R2 goes to zero. R1, R2, R3 will have the same power consumption because their currents and voltages are proportional to its power consumption and the fact that the sum of the voltage drops R1 + R2 = 0 and sum of voltage drops R2 + R3 = 0 via Kirchoff's voltage law.

**

I believe that the power attributed to R2 will increase as a lower resistance restricts current less. This can be seen in Ohm's law as voltage across the resistor will remain the same but the lower resistance will result in a higher value for current. I don't believe the power across Vs will change as it does not restrict current or change its own voltage. I believe that R3 will have to dissipate less power as to counteract the increased dissipation across R2. R1 should not have any change as the current it has should not be directly affected by R2.

**

As the resistance of R2 decreases, Is decreases as well. When Is decreases so does the power associated with Vs (P=VI). In the same way the power in R1 decreases since Vs and R1 share the same current (elements in series). The current going through R2 however, increase. This in turn causes the power to increase, since Is decreased and I1 increased, I3 should decrease to match their relationship (IS=I1+I3). The power associated with R3 therefore descreases.

**

My first thoughts when looking at this problem is that the equation for power is P=IV, and while that equation doesn't seem to be impacted by the resistance since there are no R's in the equation, I know they impact the current and the voltage based on whether they are in series or in parallel which we have both in the problem. My first step in solving this would be to find the equivalent resistance between R2 and R3. I know the equation for that is Rtot=1/(1/R2+1/R3). From that equation it would seem the total resistance would increase as R2 decreases from Ohm's Law. This would mean an increase in current which would mean a decrease in the voltage running through the resistance in parallel. So in conclusion, I believe the power would increase for Vs and R1 and decrease for R2 and R3.

**

Due to KCL and the idea of the conservation of current, I will think of this problem as if the parallel relationship between R2 and R3 are one single resistor of R23. If R2 decreases resistance then so does R23. If R2 decreases resistance then the entire circuit loses resistance from V's perspective. Because there is less resistance from the perspective of an ideal independent voltage source, the constant voltage of that source causes there to be more current throughout the system. If there is more current through the circuit, the Vs must supply more power. Because there is more current through the entire circuit, and Vs is supplying more power due to conservation of power between supplying and absorbing elements.

**

As the resistance of the second resistor decreases it is going to reduce the power consumption while the voltage stays the same due to the independent voltage source. This is going to cause a lower current throughout the entire circuit. R3 will decrease in power because there will be more current running through R2. R1 will also decrease in power consumption because of a lower current. Vs will lower its power because the circuit requires less power overall. R2 will have a higher current as it decreases.

**

First I would find the total resistance in the circuit by using parallel and series equations. B/C R2 and R3 are in parallel they have the same voltage drop. If R2 were to decrease in resistance then the voltage drop in T2+R3 would also drop b/c their R23 resistance would go down. If the whole circuit has less resistance then the I1 current must increase b/c currents and resistance are inversely related. Thus power increases in R1. The power through R2 would probably decrease a little and R3 would increase b/c it has the same R value. P through Vs would increase b/c total RT is decreasing.

**

As the resistance in R2 decreases the total resistance in the parallel branch R2||3 decreases causing the total resistance to decrease causing the total current to increase. Having the total current increase leads to more power supplied by the voltage source and consumed by R1. R2||3 has a smaller voltage drop associated with them since the total resistance dropped compared to R1. R3 has a drop in power as does R2.

**

As the resistance in R2 decreases the current in the circuit will increase beause V/R=I. This means the power in Vs and R1 will increase because P = I2R. R2 will also increase power because the lower resistance will allow more current to flow through R2. R3 will remain the same because the increased current will go through R2 because of KCL.

**

As the resistance of R2 decreases, the current through R1, R2, and Vs will increase. The current through R3 will remain the same. This is because R1 and R2 are in series, and the resistance of each effects the current that passes through each. R1 and R3 are also in series, and their resistance values are similarly effective on each other, but neither of their resistance values are changing. The power through each element will increase (or remain) in proportion to the increased current.

**

As the resistance of R2 decreases, the power of Vs increases. This is because the combined resistance of R2,3 decreases, which causes the total resistance to decrease. This increases the current and the power increases. The power associated with R1 would also increase. If the combined resistance of R2,3 decreases, R1 would be a larger percentage of the total resistance, causing the voltage drop to increase. The power associated with R3 would decrease. If the resistance of R2 decreases, the current through R3 would decrease. The voltage across R3 will also decrease because R1 will have a higher voltage drop. The power associated with R2 could either increase or decrease depending on the numbers. The current through R2 would increase, however, the voltage drop would decrease. So the power could increase or decrease depending on all of the values.

**

First I would find the total resistance. Seems that R2 and R3 are in parallel. I would make it like R1+R2||R3. Second I would use Ohm's law to find the current running through Vs so I could use, P=IV to figure out the power of Vs. Third: Now that I know the power for Vs I would use

KCL and KVL to figure out my unknowns for the resistors. 4) I would break the circuit up and first find the power for R1 and R3 because the remain unchanged. 5) Finally with all of those unknowns filled in I would find the power for R2 since it is the one decreasing.

**

Resistors R2 and R3 are in parallel, therefore as R2 decreases, its inverse increases. Adding a bigger number to the inverse of R3 makes the sum bigger. Then you take the inverse of that. Since you take the inverse of the sum, the resistance of R2 and R3 in parallel ends up being smaller, therefore more current will flow through the circuit making the power of Vs, R1, R2, R3 all increase.

**

First thing that needs to be found is the value of I through each element. All the resistivities can be summed up to give you Is. R2 and R3 would be summed up in parallel and R1 and R23 would be summed up in series. R2 and R3 would be summed up in parallel due to all the current entering and exiting through the same nodes. A simple redrawing of the circuit allows you to see that R1 and R23 would then be summed up in series. KVL would the be used to measure the voltage rise or drop across each element. KCL is used between Element 1 and Element 2+3 to see the amount of current that enters the node is equal to the current coming out. Finally once all I's and V's for each element are found you can find the power. After the power for all elements has been found, change the value of R2 for all equations and see what the decrease of R2 did to the rest of the circuit.

**

From the equation E=IR we know that amperage is inversely proportional to resistance. From KCL we know that current is conserved in series circuits and that current divides in parallel circuits. When the resistance of R2 decreases the amperage going through it will increase. With current being conserved the amperage going through R3 will stay the same because electrical potential doesn't change between nodes 2 and 3. So the power of the circuit will increase because the amperage across R2 increased with. With this increase there is a higher amount of current than before. The equation of power is P=VA so with amperage rising in the circuit power will increase. With the decrease of resistance of R2 the total resistance of the circuit decreases so because E = IR, amperage will rise and the total power will also.

**

As the resistance of R2 decreases, the voltage in Vs will remain constant as it is an independent voltage source, however, the current will increase due to ohm's law which states current and resistance are inversely proportional, so this decrease in resistance leads to an increase in current. Same voltage and higher current means the power increases because since P=IV. R1 will also have an increased current as there are no other options for the current but to flow through R1. And due to ohm's law, V=IR, same resistance and higher current will also lead to a higher voltage. Higher V and I again leads to more power in R1. The higher potential difference in R1 will lead to a smaller potential difference in R2 and R3 (the potential difference between the two is equal). As R2 is now lower, a larger amount of current will flow through R2 than R3. As R3 is getting a smaller portion of the current and the voltage has decreased, its power produced also decreases. Without numbers it can not be determined if the power of R2 increases or decreases because the current increases but voltage decreases so it depends which is greater.

**

As the resistance of R2 goes down the current will increase this circuit. Since the voltage will not change the power in all the elements should increase because the current increased. Each element should absorb or supply more power.

**

References V=IR, I=V/R, Rtot=1/R2+1/R3, P=VI. As the resistance of R2 drops, so does the total current of the system, and the current travelling in the parallel portion of the circuit. (R2||R3) In fact, it would go up. This would increase the power dissipated by R1 as Vs is constant (Ideal Vs) but I acrossed it increased. Since current follows the path of less resistance, more current would be passing through R2 in the parallel portion, and less current through R3. Since vdrop is = in parallel connections, this means more power is disapated through R2, and less is disapated through R3, While this is happening, the current through Vs is changing (positively) therefore the power supplied by Vs increases as R2 drops.

**

Since R2 and R3 are wired in parallel, the voltage drop across both is the same. However as R2 decreases, the total resistance of R2+R3 would increase. This would make the total resistance increase also. This means that the current going through Vs + R1 would decrease Vs unchanged =IR increased. Since P=I(V) and voltage has remained the same + I has decreased, the power supplied to Vs would also decrease. Now going to R1. Since the value of R1 has remained unchanged and IR has decreased, we can say that the voltage drop of R1 has decreased. Since the voltage and the current of R1 have decreased, (P=IV) the power dissipated of R1 must also decrease. Since R2 was decreased, R3 and R1 must increase to keep the voltage drop = 0. So current of R3 must increase also so power of R3 goes up. Since V2 went up + R2 went down, I2 also went up so power did too.

**

I like to examine the circuit as a whole. I see R1 in series with Vs and R2||R3. The voltage drop across R2 and R3 are the same due to them being parallel. The power associated with Vs remain unchanged as it is our supply. As R2 is decreased the equivalent resistance for R2||R3 increases. With this increase the power to that equivalent increases as well (P=I2Req). The power in R1 remains unchanged.

**

As R2 decreases the current I through R2 increases. This increases the power associated with R2 (PR2=IR22R2). The power increases with R1, R3, and Vs as well. The power associated with VS+R1 increase because R2 decreases the equivalent resistance for the whole circuit decreases.

**

In this circuit we have an independent voltage source Vs. In series with this voltage source there is resistor R1 and R2 and R3. Resistors R2 and R3 are in parallel with each other so therefore the total resistance in the circuit will be equal to R1+R2||R3. If we were to decrease the resistance of R2 we would see power supplying and power dissipating amounts change across the all of the elements in the circuit. First of all we would see a total drop in power dissipated in R2 and R3. This is because as R2 decreases, the equivalent resistance of R2||R3 also decreases. This means a smaller voltage drop across the two and a small current across R3, since its R value will always stay the same. As R2 approaches 0 Ohms the circuit becomes different. The equivalent resistance is now R1. This also means that R1 will have more current passing through it, and a greater voltage drop across it due to ohms law (V=IR). This also means power dissipated across the resistor will increase as both the amounts have increased. Lastly, the voltage sources power supply will increase. Since resistance has decreased in the circuit, the current has increased. With the same voltage output, this means the power supplied increases, P=IV.

**

As R2 decreases the equivalent resistance of R23 decreases, this makes the equivalent resistance of the entire circuit decrease. Thus as the resistance decreases the current provided by the voltage source will increase also increasing the power demand on the voltage source. As R1 sees an increase in current the power demand on it will also increase. Because the voltage across R2 and R3 will be the same as the resistance of R2 decrease the current will flow through it easier and the power demand on R2 will increase as R3 decreases.

**

VS + R1 is staying the same because nothing has changed with them. As the resistance decreases on R2 the current will increase. Therefore I believe the power will remain the same or even increase depending on how much the current changes. For R3 the power will decreas due to current increasing in R2.

**

The power associated with Vs would stay the same because the amount of current doesn’t change and the voltage drop is always the same. The power in R1 is also the same because neither the voltage drop nor current change. The power in R2 increases because V in R2 and R3 are equal, but since R2 decreases, I2 would now increase to keep the voltage drop in R2 equal, making P2 increase. Thus, with less current in R3 due to more current going through R2, the power associated with R3 decreases.

**

As the resistance in R2 decreases, the power associated with Vs will stay the same because it will still have the same amount of current and voltage that does through it. The power associated with R1 will stay the same for the same reason. As the resistance in R2 goes down, the power may increase or decrease. If more current runs through R2 due to less resistance, then the power would increase because there is more current. If more current doesn’t run through, then the power of R2 would decrease because there is less voltage. The power associated with R3 would increase if more current doesn’t run through R2 and decrease if more current does run through R2.

**

If Vs is truly an ideal source it should output the same amount of power regardless of the other elements in the circuit. Since the total resistance in loop 1 is decreasing, this means the current will increase, I=Vs/Rtotal. Given the fact that current is increasing, and the resistance of R1 is not changing according to Ohm's Law this means voltage will also increase. And if both voltage and current are increasing, the power related to R1 is also increasing. Since the resistance of R2 is decreasing, the current through it will increase. But, with a decreasing resistance the voltage will also decrease. This makes it hard to determine power. Since voltage and current are proportional, the power of R2 is most likely remaining the same. Since R2 dose not effect loop 2, so the current will remain the same, but considering KVL, the voltage at R1 increased meaning the voltage at R3 must decrease, creating a decrease of power.

**

Since R2 and R3 are connected at two nodes, they are considered to be connected in parallel. Since they are in parallel, decreasing R2 will lower the equivalent resistance R23 due to R23 = 1/(1/R2+1/R3). As a result of the lower equivalent resistance, the potential difference across R2 and R3, since they have the same potential difference due to being in parallel, will also decrease. If the equivalent resistance R23 decreases and the potential difference decreases over R23, R1 will have to accommodate for that by experiencing an increase in its potential difference. Since power is calculated by the equation P=IV, and I can be defined as I=V/R we can say that P=V2/R. Since the potential difference over R1 increases, the power dissipated will increase while the opposite can be said about R3. R2's resistance also changes, however, but since voltage is squared the power through R2 will ultimately decrease. Additionally, since R2 is the only element that is changing value, when R23 decreases and since R23 and R1 are in series the total resistance of the circuit decreases causing an increase in current and an increase in power generated by the battery.

**

R2 and R3 are in parallel so as R2 decreases in resistance, more current will take the easier rought through R2 instead of R3. Therefore R3 power will decrease. The combined resistance of R2 and R3 will decrease thus making the current greater in the circuit as a whole because it's path from positive to negative is easier. Thus R1 experiences more current and therefore power. Vs being the power source will supply more current at the same voltage increase its power.

**

As R2 decreases the current through Vs, R1, and R2 increases. Power goes up in all of those elements since it is a function of current and voltage. The current in R3 would drop and so would power.

**

The power for Vs never changes and it will still provide power. Since the resistance of R2 is decreasing, R2 will become a straight wire which means there will be no power since power for an element needs voltage and current. Since R2 became a straight wire all the current will flow through the straight wire instead of R3 because there's no resistance. Which means R3 will lose power since there is no current. This is a short circuit. The power of R1 will increase since it has all the power from the voltage source to absorb.

**

As the resistance of R2 drops the current through it must increase according to Ohm's Law. Therefore the power equation shows that if V stays the same and I increases, then the power will have to increase. Resistor 1 is the things that makes my perceived ability lower than 100%, I think that a change in R2 would effect the current throughout the circuit and so the power through R1 would increase. The power associated with the ideal voltage source will also go up because the voltage is constant across it, and the current will increase.

**

The power in across R1 remains the same because R2 has a lower voltage drop but is after R1 so the resistance across R2 doesn't affect R1. Furthermore the power across R3 drops because R3 and R2 are in parallel so the KCL says that as more current flows through R2 less flows through R3. The power across Vs increases because there is less resistance in the circuit as R2 decreases so there is more power because P=VI and the current across R2 increases V=IR.

**

As R2 decreases less current runs through R3 since current takes the path of least resistance. R23=1/R2+R3)^-1 R23 becomes more resistive. R1+R23 is now large = R123. Because of V-IR or V/R=I, there is now less current in the system. Since P=VI and current is now smaller, the power decreases. P through the voltage source decreases, R1 decreases and R3 decreases.

**

We know that resistors in parallel with the voltage source will have the same voltage drop across them so by decreasing the resistance in R2, the power associated with will decrease as well but it would not affect the other resistors. P =IV=I^2R.

**

As the resistance of R2 decreases, more current will flow through loop 1, as current will take the path of least resistance. As the resistance gets closer to zero this loop will act like a short circuit and R3 will be cut off current, the new circuit acting in series. This will not affect the power of VS or R1, as their current is unchanged, but the power associated with R2 will increase and R3 decreases because all energy must still be conserved.

**

Power is proportional to the voltage and current. When the resistance of R2 is reduced the overall resistance of the circuit will also be reduced, to maintain the same voltage of Vs then the current must be increased or if the same current in the circuit is maintained the voltage provided by Vs will have to be reduced. In the case where current is increased the power supplied will also increase. And when the voltage provided is reduced the power provided will also be reduced. All 3 resistors dissipating power. If the voltage supplied from Vs is reduced then the power that all 3 resistors are dissipating will be reduced. As the resistance of R2 is lowered the ratio of power dissipated will be higher for R2 vs R3. In the case where the current of the circuit is increased to maintain the same voltage in the system then all 3 resistors will be dissipating more power.

**

R2 is wired in parallel with R3 so as R2 goes down the Requivalent of the two will go up. This will cause the current equivalent to go down, meaning R3 will have the same voltage and less current across it decreasing the power dissipation. The power at R2 will also decrease with less current and same voltage. R1 is in series with R23 which now has a higher R1 so R1 will now draw less current and have to dissipate less power. The voltage source will provide constant voltage with a new lesser Ieq w=will have to supply less power.

**

Since R2 and R3 are in parallel connection their resistance will increase because the resistance is proportional to the inverse of the sum of their conductance. Since the value of voltage hasn't been changed and the resulting increase in resistance due to the series connection of R2||3 and R1, the power of the circuit will decrease since the increases resistance lowers the current. The resistance of series connection R2||3 and R1 is proportional to the sum of their resistance, the power of circuit is proportional to the product of voltage of the circuit and the current of the circuit. Following the Ohm's Law, the current is equivalent to the quotient of voltage and resistance (V/R).

**

In the initial condition, there is a current flowing from the positive side of the voltage source, through the resistors, and back to the negative terminal. But, the current through the battery plus the R1 resistor is not the same current in R2 and R3. The sum of the current through the battery is split between the paralleled resistor paths. As resistor R2 decreases in resistance, more and more current flows out of the battery and a greater percentage of that current will choose R2 path instead of the R3 path. This event will happen until R2's resistance is the same as a wire, no resistance, a short circuit. At that point, all current and power supplied by the battery will be dissipated over resistor R1, completely avoiding R3 because R2's resistance is non existent.

**

Vs will remain unchanged as it is the only voltage source. Because the resistance of R2 is decreasing, more of the electrons will flow through it opposed to R3, reducing the power associated with R3. The increased current from less resistance in the circuit will make R1 have more power associated with it.

**

As the resistance of R2 decreases the power associated with Vs, R1, and R3 will increase. R2 dissipates a certain amount of power as a resistor. If the resistance of R2 is lowered than the amount of power it is dissipating decreases. The same amount of power will need to be dissipated/supplied regardless of a change in R2. Because of this the other parts of the circuit must dissipate the extra power.

**

The first thing I think about is how the power is going to be affected starting with R2 and R3 being in parallel. When in parallel these two resistors will equal (1/R2+1/R3)^-1. If R2 is decreased, R23 will increase causing Req to increase. Now, this will make the current decrease because Req will increase. Making the power decrease because the current is decreasing.

**

The power associated with Vs, R1, R2, and R3 will increase because as the value of R2 decreases, the overall resistance of R23 will increase creating a larger voltage drop across the resistors and thus associating more power with the circuit.

**

As the resistance of R2 decreases, the overall current of the system would increase according to Ohm's Law, since the resistance seen by the voltage source is decreasing. The power of Vs and R1 would increase because the voltage stays constant while the current increases (P=IV). Since R2 is becoming closer and closer to a short around R3, the power associated with R3 will gradually go down, while that of R2 will gradually go up, since R2 becomes a path of less and less resistance.

**

The power has to do with the amount of resistance, so first if the value of R2 was decreasing, then when you would try to simplify the circuit by combining R2 and R3 in parelleI, the lower R2 signifies a lower total R and when adden in series with R1 the total would be even lower. Which according to V=IR would change the values for V and I if R is lowered than V would decrease while I would decrease slower. The if the power would lower since P=IV if either current or voltage lower so does power.

**

As R2 decreases, Ref decreases. Vs is constant, so the power depends on Reff. As R2 decreases PVs increases. As PVs increases the resistors are required to dissipate more power because of conservation of energy. Therefore, whem R2 decreases, PVs increases. Because Vs is constant, I increases. This causes R1 to dissipate more energy. R2 dissipates more energy because the R is decreased. R3 dissipates less power as R2 decreases because it's resistance is unchanged.

**

Req=R1+(R2||R3). Vs=IReq. As R2 decreases we can see from the fact that it in parallel with R3 that Req will decrease and we see with understand that Req directly effets in power, the powerresistors also decrease. Charge is constant so through the circuit Is has to always come back the current leaves R2 is subject to change being it in parallel with another resistor, R3, so the power through Vs is subject to decrease as Req has decrease as well.

**

Vs and R1 are connected in series so the IS = I1. Since R2 and R3 are connected in parallel and not connected in series so I1 will be divided when entering R2 and R3. That being said, R2 and R3 are in parallel. So R2 and R3 can be treated as R23 – one resistor. R23 can be expressed as (1/R2+1/R3)^-1. Now the whole circuit can be seen as a simple series circuit with only three elements Vs, R1, and R23. If R2 decreases, R23 decreases too. So the current going through R23 decreases too. So the power of Vs, R1 and R3 will also be decreasing.

**

As R2 decreases in value the Req of R23 also decreases in value. With less resistance we will have a greater current draw and a larger power through the relative components. The total Req cannot be < R2 (or the smallest R).

**

As R2 decreases, R3 will recieve less current, therefor will have less power. R1’s current also change but only because decreasing R2 lowers the overall resistance of the circuit. This applies to Vs’s current as well. R1 will take more power, Vs will produce more. Eventually R3 will have no current due to a short.

**

When R2 decreases, it is in parallel with R3 and R2 and R3 are in series with R1, so the resistance through the whole circuit decreases. Vs provides a known voltage, so the current must change to accommodate the new resistance. V=IR. The current will increase when the resistance decreases. Vs will provide the same voltage, but the current is increases, P=IV so the power will increase.

**

First of all, we know that resistors are passive elements and therefore will be absorbing power in this circuit. There is only one component that could be providing power therefore we know that Vs is providing power. As R2 changes, obviously, the voltage drop associated with it also changes therefore the power absorbed by it would also change. Since R2 is in parallel with R3, they share a common potential difference therefore if R2 changes then the power associated with R3 also changes. Since R23 is in series with R1 then as R2 increases, it will drop more of the voltage and R1 will drop less and the same can be said for the power of R1.

**

I first recall what power is an how its calculated. I then think about and mark each relevant element. I realize that R2 and R3 are in parallel, so the equivalent resistance will always be less than the smallest resistor. Since R2 is decreasing, the total resistance in the circuit is also decreasing. Since the voltage source is staying the same, there must be more current to make ohms law true. Since there is now more current, power associated with each element is also greater, since it equals voltage multiplied by current.

**

The power associated with Vs would stay the same as would the power associated with R1, however the power associated with R2 will go up and the power associated with R3 will go down. I think Vs and R1 will stay the same because they are not directly associated with R2. However, with less resistance, R2 will absorb more power leaving less power for R3 so R3 will have less power associated.

**

As the resistor value of R2 decreases the overall resistance increases. Due to the resistors in parallel equation, as R2 decreases the equivalent resistance of R2 and R3 will increase causing overall resistance to increase. Then, because power is proportional to the current squared times total resistance, power will increase. The equation that I thought of to make those claims where:

Rtot=R1+R2+…Rn. 1/Rtot=1/R1+1/R2+…+1/Rn. V=IR and P=IV. My thought prosess often times includes mental calculations with number inputs chosen by myself to help understanding.

**

As R2 decreases, the parallel R23 resistor decreases in resistance, that decreases the overall R for the circuit. Power=V^2/R, as R decreases, P goes up. That is power dissappated by the Rs as well as P supplied by Vs. As R23 decreases, less V is needed to push current and more V drops over R1. This increases Power dissipated over R1 and reduces the power dissipated over R2 and R3. In short, PVS increases, PR1 increases, PR2 decreases, PR3 decreases, PR123 increases.

**

The power that R1 absorbs will increase as the current stays the same but the voltage drop increases. Resistivity of R2 is approaching that of a short circuit, which would have a voltage drop of 0, so all the voltage will start to drop over R1. R3 will start to be bypassed because there is a path of less resistance.

**

The first thing I noticed looking at the circuit is that R2 and R3 are connected in parallel, and then connected to R1 and Vs in series. The equation for parallel resistors is 1/(1/R2+1/R3). From that, I can gather that the total resistance would increase as R2 decreased. An increased resistance would mean a smaller current for the series part of the circuit meaning the power of Vs and R1 would decrease. If R2 decreases that means more current would flow towards it at the node meaning R2 would increase in power while R3 would decrease in power.

**

I know that power (P=IV) depends on the current, which depends on I=Vs/Rtotal. This means that if the value of R2 goes down, it allows for Rtotal to go down and that means Vs is divided by a smaller number, causing for current to be greater and making power to also be greater. So if R2 decreases (and everything else stays the same) then the power associated with everything else is higher.

**

As R2 decreases, the power associated with it will increase as, the voltage drop doesn't change by KVL, there will be proportionally more current across the branch R2 is in, with R3 in parallel. Similarly, R3 will have the same power decrease across it as R2 had increased, as there is proportionally less current. Vs and R1 remain unchanged as they still have the same current and voltage drop. This only works for R2 on the order of R1 and R3 or smaller. If R2>>R1 and R3, then the power associated with all units besides the voltage source would change as R2 changed. If R2 is on the order of R1 and R3, then a noticeable change in power as R2 drops is present by the parallel combination of R2 and R3, if R2<<R1 and R3, R2 decreasing does virtually nothing.

**

As the resistance of R2 decreases, the power for each of the remaining elements will increase, providing Vs remains an ideal independent voltage source. As R2 gets smaller, the current will increase thus (P=VI) the power will increase.

**

With R2 being the only changing element, the power through all the elements will increase as R2 decreases. The current is set by the total resistance the circuit “sees” so as the resistance goes down current goes up and so does power.

**

So regardless of what’s happening to R2, Vs will always remain the same. B/C R2 and R3 are in parallel, they have the same voltage drop across them so when R2 decreases more current will flow through R2 to compensate for the drop in resistance. If R2 decreases that also means the equivalent resistance of the circuit will decrease. If Req decreases then the current that flows through Vs will increase. Since PVs=VI power across Vs will increase. Since the current that flows through R1 is the same as Vs, and R1 remains unchanged but the current increased PR1 will increase. Voltage drop across R2 and R3 is the same, but b/c R2 is decreasing current increases to compensate so PR2 goes up but PR3 will decrease b/c not as much current is flowing through it.

**

We know that R, Vs, R3 are the same as R2 decreases. When R2 decreases the total resistance also decreases. This means more current will flow. Delta R = R1 + 1/(1/R2+1/R3). V=IR. V/R=R. R gets smaller, V stays the same, therefore I gets bigger. Because of I^2R the increase in current will out weigh the decrease in delta R so the power associated with Vs, R1, and R3 will increase.

**

The first things is to note the voltage values and resistors in order to find the current. From there we can get the power values of each element. Next is to change the value of resistor 2 to decrease and then dinf the current and voltage which will tell us the new power levels of the system. KCL and KVL may be required to do this. When that that if R2 is decreasing that the voltage and/or current will decrease in that part of the circuit, causing R2 to have a smaller power level. The rest of the elements will have to pick up this lost power seeing as power is conserved. This will most likely happen with a change in current.

**

R2 is in parallel with R3. R2 and R3 are in series with R1. As the resistance of R2 decreases, the current passing through it increases. This causes the power associated with R2 to increase according to P=IV. This also causes the power associated with R3 to decrease for the same reason. Since Vs is an independent power source, as the overall resistance of the circuit decreases the current increases. This means the power associated with Vs and R1 also increases.

**

In ohms law current and resistance are proportional, meaning that as one decreases, the other increases. In parallel resistors current is shared. Therefor, if resistance in R2 decreases the current will increase. This will cause R3 to get brighter. As current increases through the node containing R2 and R3 the voltage drop across R1 will decrease, making it dimmer. Vs will remain the same.

**

R2 and R3 are in parallel, have resistance equivalent to (1/R2+1/R3)^-1. As R2 decreases the overall resistance of the parallel bit goes up. As R2 goes down the resistance of the parallel branch becomes more like (1/R3)^-1 so the total R of the circuit goes up. And current will go down and power goes down across all components.

**

In order to begin, more information needs to be provided, voltage and current must be known. Only then, we can measure voltage drops in the resistors to determine each individual power rates. I think when R2 decreases, R1 and R3 increase but the voltage stays the same. P = IV.

**

I would say that if the resistance of R2 decreases then it would end up decreases Req. And if Req is less, power would be affected. For Vs since Req is decreasing the current would increase making power increase because in P=IV, the I will be a bigger number. Now seeing that current increases throught the circuit because of this decreasing resistance I would hypothesize that power will increase for the resistors because they are taking in the new increased current.

**

The first that I'd do is find out exactly what the current is in R1 by using Ohm's Law twice using I=VS/R1, on you know what the current is in R1 you can start to think about KCL in that the sum of the current = the sum of the current out. From there on out you can find the current passing through R3 and you know the values are set as explained above. As R2 decreases you can see both and increase in R1 and R3 as I1=I2+I3 and then you can predict what happens as R2 decreases. And as R2 decreases you will see more power flowing through it and less resistance from R2.

**

Power in a circuit stays the same, so the overall power dissipated by the circuit will stay the same regardless of the value of R2. Assuming that Vs is providing power (as it is the only potential source in the circuit) that means that R1,R2, and R3 are the only elements dissipating power. The power dissipated by R3 stays the same regardless of the value of R2, because the two of the are in parallel. Assuming Vs does not follow the passive convention, current flows through R2 and R3 before reaching R1, so if the value of R2 changes, then so will the power dissipated by R1. So as the value of R2 increases/decreases, the power dissipated by R1 will decrease/increase.

**

As resistance of R2 decreases, there is less of a voltage drop across it. As the voltage decreases, so does the power it dissipates which causes the other elements to take on increase voltage and power. This is due to the fact that that the voltage source would still be supplying the same amount of power regardless of of R2 decreasing in resistance.

**

I look at the circuit as a system. Vs is supplying power in this circuit and that power is the product of the voltage of Vs and the current in the circuit. Total current in the circuit can be found using the total resistance and Vs. R2 is parallel R3 so in that case if R2 decreases the overall total resistance summed with R1 decreases results in more current in the circuit. Power is a product of voltage and current so even if the voltage is the same and current increases, the power will increase as well.

**

As the circuit is set up, there is one resistor that is in series with the other resistors that are in parallel. As the resistor R2 gets smaller, the resistance in the parallel branch will slowly decrease as well. This will decrease the total resistance of the circuit, and similar the total power will decrease. This is because of the power equation P=I^2R.

**

Resistor R2 and R3 are in parallel. If we reduce the resistance of R2, the combined Resistor23 lessens. The combined parallel resistors were small to begin with and now they are just smaller. This is because of the way we add up parallel resistors (1/r2+1/r3)^-1. Power is calculated using P=IV. The current should remain the same while the voltage will increase as there is less resistance. Therefore power should increase over Vs. The same should apply to the rest of the components. Rtotal=R1+(1/r2+1/r3)^-1. V=IR.

**

P=IV. P=V^2/R. P=I^2R. Power delivered by Vs will increase due to smaller Req. This means R1 and R2 will have to dissipate more power.

**

The total resistance of the circuit will decrease. Vs will supply the same voltage regardless o, so the current and power supplied by Vs increases. As the current is greater, R1 dissipates a larger power. The current paths are split between R2 and R3. As the R2 path becomes the easier one, the power for R2 will increase and the power for R3 will decrease.

**

As resistance of R2 decreases, the Req in the whole circuit will decrease causing more current to flow to still satisfy Ohm’s law. With more current flowing from Vs, Vs will provide more power, and R1 will dissipate more power. Since R2 and R3 are in parallel, as the resistance of R2 decreases more of the current will go through R2 instead of R3 causing Pdissipated of R2 to increase. I think Pdissipated by R3 will remain unchanged because there is more current being provided but that current will go through R2 and not affect R3.

**

Since resistors in parallel have an Req lower than the smallest resistor, the total resistance of the circuit would lower as R2 decreased. This would lower the initial current in the circuit until R2 is so small it is essentially a wire and shorts out R3 completely. This would cause all the voltage to be dropped on R1. PR3 would be zero and PR1 would increase until it reaches (VS^2/R1)R1. Power dissipated in R1 would equal power supplied in Vs but I'm not sure if the Vs changed from the beginning.

**

The power of Vs will increase since P=IV. When the resistance goes down, the current will increase, and the power will go up. The power of R3 will go down since more of the current is going through the less resistant R2. The power of R1 will go up since more current is being pulled from the battery.

**

The power associated with Vs and R1 will stay the same and since R2 and R3 in parallel, they share the same voltage drop. However, when R2 is decreasing, the current through R3 decreases, therefore, the power associated with R2 and R3 will change.

**

As R2 decreases, the equivalent resistance decreases. Therefore the total current through the circuit will increase, along with the power supplied by Vs. R1 will absorb more power due to the increased current through it. R2 and R3 however are not obvious regarding the changes in their associated power, since there are multiple changing variable (voltage, current, and resistance).

**

P=VI. If R2 drops then voltage will increase, increasing the power. P=V^2/R here if R2 drops the power increases.

**

Since R2 and R3 are in parallel they will be related by R23=(1/R2+1/R3)^-1. When decreasing the R2 value, more current and power will go to R2. R23 and R1 are in series, so the R23 value will decrease meaning R1's power will decrease, because the current in the circuit will be less. The power of the voltage source will also be slightly less because it is directly effected by the overall current.

**

If the resistance of R2 decreases that will lead to a lower equivalent resistance of the circuit. This new equivalent resistance will mean that there is more current flowing through the circuit then there was before. The power associated with Vs will increase since it will still supply the same amount of voltage but will have a larger current. The power associated with R1 will also increase because the voltage drop across will increase as well as the current. Finally the power across R3 will decrease because the voltage drop will go down and more current will flow through R2 so the current will also go down.

**

As the resistance decreases of R2, Vs would decrease. The reason for this is when your start to work backwards you find a smaller value for R2. Whilst the other resistors would stay the same. The first things that would happened would you would want to try and get the resistors added into one then by taking that to find the current of the whole circuit. With that process you can work backward to find the resistance of each resistor and being able to see what would happen to each resistor and power source when R2 is changed.
**

Well first off we know to determine the power we have to find the equivalent resistance of the system so that we can find the current. If R2 is lowered the current of the whole system will increase and in turn the power output will as well because power=IV and the voltage drop across the whole system will be the same no matter what because of KVL, so increased current and constant / near constant voltage will translate into higher power disperse of all the resists and higher power supplied at Vs. KVL states that through any loop Vin=Vout so lowering the resistance of R2 will increase the voltage at V1 proportionally so lowering the resistance of one resistor should increase the net power output in a circuit.

**

The power associated w/ the vsource would increase because the Req would lower so there would be a greater current based on Ohm’s Law. The power associated with R1 would not change based on P=V^2/R the resistance of R1 doesn’t change. Same w/ R3 voltage doesn't change at nodes.

**

AS the resistance of R2 decreases, so does the total resistance of the circuit, so current increases. This means that Vs supplies more power, and R1 dissipates more power. R3 will take a smaller portion of the current, so it will dissipate less power. R2 will dissipate more power because it take an increased current. The current change will over power the resistance change because P=I^2R.

**

The voltage provided by Vs remains constant, but with an increasing total resistance, the current will decrease, decreasing the power provided by the voltage source. R1 will also have less current flow, so the power dissipated by R1 will decrease. R2 and R3, being in parallel, can be combined into one resistor R2||R1, which has a greater resistance as R2 decreases in value. As such, the power dissipated by R3 decreases, while the power dissipated by R2 increases because more current will direct from R3 to R2.

**

As the resistance of R2 decreases, the circuit becomes more and more like a series circuit, increase the overall resistance of the circuit, increasing the voltage, but decreasing the current V=IR at each of the components. Overall R=R1+(1/R2+1/R3)^-1 as R2 decreases overall R.

**

So first I would combine R2 and R3 in a parallel connection. This leaves me with a circuit R1+R2||R3. Using this I would find an Req, using Ohms law I would find a current through the circuit. After that I would be able to find a voltage drop among each resistor. Using this I would find the power P=IV or P=I^2R. I would then decrease the resistance of R2 and see the changes along with the power decreasing at R1, R3. Since V=IR if R drop I must increase causing more power at R2 which means less at R1 and R3.

**

R2 and R3 are connected in parallel. So, as R2 decreases resistance R2||R3 decreases too since R1 and R2||R3 are connected in series so the total resistance of the circuit also decreases as R2 decreases. Since I=V/R, as R decreases, current I increases. So the power associated with R2 increases but associated to R3 decreases, because R2 is smaller than R3 so more current flows through R2 than R3.

**

To begin the problem, it can be noted that the power dissipated in Vs and R1 will not change as current through those elements will not change. As R2 decreases, less of the current distribution is directed toward R3. This is because lowering the resistance of R2 provides a path of less resistance. So, more power will be consumed by R2 and less by R3.

So, more power will be consumed by R2 and less by R3 - In the circuit, as the resistance of R2 decreases, the current through the element increases, causing the power to increase as P=(I^2)*R. R3 receives less of a current and there for will decrease in power. I guess because current affects power exponentially that it makes since how R2 increases in power. This is because lowering the resistance of R2 provides a path of less resistance. This is how elements in parallel behave, especially resistors in parallel.

**

The power in the circuit will go down. This is because the equivalent resistance will decrease in the parallel brand and when you combine the parallel branch into one you can use the power equation. I am least confident in this one because while I feel it offers good evidence, I am worried that my reasoning was confusing and I might have gotten the wrong concept from it. Given that the R in the equation will be lower than before the current won't change but the resistance will be lower giving you a lower power since the battery won't have to work as hard. This sentence is my most confident because I feel like it explains the reasoning a lot shorter and to the point. I also feel that it can be understood with a larger audience and that this helps with this somewhat simple circuit.

**

If we start with component Vs we know that resistors do not affect current, and that Vs will have a constant voltage, therefore if R2 is decreased then Vs will stay constant in regards to power. This is the same for R1, regardless of what R2 and R3 are the same amount of current is going through R1 and it is going to have the same voltage drop regardless of R2, therefore it is constant regarding power. As R2 decreases the power associated with it will decrease as well, since the voltage drop across it will be less. R3 will stay the same though, this is because the current going through the two resistors is the same no matter what, and they will have separate voltage drops, meaning R3 is independent of R2 in terms of power.

I am most confident with the top sentence regarding Vs and how it stays constant. I am confident because I know current and voltage are constants therefore power is constant. I question the accuracy of the last sentence, regarding R3 and if it will stay constant when R2 decreases. I am less familiar with parallel and therefore am less confident.

**

The resistance equivalent to R2 + R3 (parallel) will decrease, so as the total resistance (R1 in series with the equivalent). nnThe intensity in R1 will be increased by this formula V divided by R equals I.the power associated with the V will be increassed proportionaly to the current, so as the power dissipated by the first resistance. r3 decreasen the bigger amount of current will pass through the smaller resistance so the power in R2 will increase and in R3 decrease,

**

First off I would start by assigning an arbitrary constant to each of the resistors to better understand what is going on. Vs will be 10 V, R1 will be 1 ohms, R2 will be 2 ohms, and R3 will be 4 ohms. When adding these together to find the equivalent resistance inside the circuit, we will have R1 plus the inverse of the added inverses of R2 and R3. This will end up resulting in an equivalent resistance of 2.33 ohms. This gives the current on Vs to be 4.29 A, with an associated power on it of 42.9 W. nNow if we decrease the resistance of R2 down to one ohm that will affect the equivalent resistance and therefore the current associated with Vs. This will lead to R1+(1/R2+1/R3)^(-1). This equivalent resistance is 2.25 ohms, and since the total resistance is less the current will be more. This associated current is 4.44 A. Multiplying this current with our initial voltage will result in a power of 44.4 Watts. This is higher than the first determined power, therefore we can imply that decreasing the resistance on R2 will end up providing more power to the rest of the circuit.

I question the accuracy of the very last sentence because I am not sure if R2 and R3 have a power increase as well. I am most confident in the the third sentence, because I am certain that is how to find the equivalent resistance and start plugging things together.

**

R2 and R3 are in parallel with the voltage source, they will have the same voltage across them. R1 is in series with R2 and R3, R1 will have the same Amps as Vs. The Power of R2 goes up as the resistance goes down; for oms law the current must go up to maintain the voltage across R2. As more current goes through R2 less will flow through R3 KCL, thus the power absorbed by R3 goes down. R1's power will change as R2 changes it effects the total resistance of the circuit, effecting the amps flowing through the system.

I am least confident in my last sentence. I am having hard time working through the problem without numbers. If the total resistance changes, the current will change with it. witch would change the current through R1. I think.... I feel my first sentence is pretty accurate, other then i didn't address that the voltage across them will be what voltage is left over form the voltage drop across R1s

**

As the value of R2 drops the overall resistance of the parallel circuit drops with it. Since R1 and Vs doesn't change according to Ohm's law the current would increase throughout the circuit. According to KCL the current from R1 is split in two when it hits the node connecting all 3 resistors but that would still cause an increase in the power of R3 but I'm uncertain if the current increase of the circuit would be enough to cause the power associated with R2 to remain constant or if it will decrease. I don't know how fast R2 or anything else about this circuit other than it's a circuit and working with theoretical variables to figure out the rate R2's power will change, while doable, would be incredibly time consuming.

I am most confident in my first sentence. Other than replacing the word circuit with component/tacking on component after circuit, the resistance of a parallel circuit component is always smaller than the smallest resistor in parallel. Since the value of R2 would drop there comes a point where it will become the smallest resistor if it isn't already the smallest.

**

First I would attempt to find the Req of R2 and R3. Then since R2 and R3 are in parallel I would know that the voltage across the them is equal. I am confident in this statement because I remember it from the notes and also from the way that you wire a house and there is the same voltage throughout Therefore, because of KCL, the power dissipated in R3 would be inversely proportional to the power in R2. R1 on the other hand, is in series the the combination of R2 and R3 so those elements will have the same current. Consequently the power would stay the same at R1 by KCL. I think this is how things work.

The power supplied by the voltage source would also stay the same because power is conserved.

**

If the resistance of R2 decreased, then the current would increase over the whole circuit. Since power is directly proportional to the current and voltage, the power should then increase for the other elements of the circuit.

**

The equation P=IV tells us what the power associated with each element will be. Also, we can determine that the current through the left loop of the circuit will increase as a result of R2's resistance decreasing due to the equation I=V/R. Because of this, the current will cause the power to increase due to the equation P=IV for the voltage source and R1 will increase. The power associated with R2 and R3 will also increase because the current running through them is the equal has a bigger affect than the resistance, this is evident in the equation P=I^2R.

I am least confident with the second sentence, because I am not super confident with how i used the equations to come to that conclusion. I am most confident in the third sentence because i am fairly certain that the power associated with the Vs and R1 will increase

**

When the resistance of R2 decreases in this circuit, the total circuit's resistance decreases. Because Vs is an ideal voltage source, it does not change its voltage provided when this happens, but the current leaving the battery will increase, therefore increasing the power the battery provides. Because current will also increase across R1, the power dissipated by that resistor will also increase. I am confident in this because when resistance stays the same and current increases across a resistor, voltage also increases, therefore power increases.

The voltage across the two resistors in parallel will decrease because there is a higher potential across R1. If we reduce the resistance of R2 so much that it acts as a wire, R3 will have almost no current running through it. The current and voltage will decrease across R3 so power also decreases across R3. The potential across R2 will decrease because it is lower resistance but the current will increase across this branch so this component is the hardest to determine. P=IV. P=i^2R .Because resistors are linear (mostly), if this resistor was low enough rated to act as a wire, there would be no power dissipated by it because there would be no resistance, therefore I believe the power dissipated by this resistor also decreases. Not the most confident because it is hard for me to visualize it without drawing a model so this is the best way i could determine if the decrease in resistance affects the power more than the increase in current across this branch would across this resistor.

**

To find the Req, I would combine resistors R2 and R3 by adding the inverse. (1/R3)+(1/R2). This puts the circuit into a simpler model in which it has two resistors left that are in series. Thus to combine resistors in series I would do: R1+((1/R3)+(1/R2)). This combination allows me to find the current associated with the entirety of the circuit. After finding the total resistance of the circuit, we can find the current of the circuit then apply ohm's law: I=V/R. Next, to find power emitted by the circuit we would multiply voltage source by the current of the whole circuit.

**

I know that to calculate the power, you multiply the current by the voltage. Given that the voltage source remains unchanged, the voltage and current through it remain the same, so the power does not change. The resistance of R1 also remains unchanged, so the voltage and current through it remain the same. Using the equation power equals current multiplied by voltage, you find that the power stays the same. Unlike the others, the resistance of R2 decreases. The current running through the circuit remains the same, despite whether or not other values are changing. To calculate the voltage of this resistor, I would use Ohm's law, and find the voltage by multiplying the unchanging current by the decreasing resistance. The result of this would be a decreasing voltage. Then plug this into the equation for power, and find that the current multiplied by the decreasing voltage results in decreasing power. Finally, the resistance in R3 remains unchanged. Similarly to Vs and R1, the current and voltage do not change, causing the power to also remain the same.

I said “The current running through the circuit remains the same, despite whether or not other values are changing.“ I am second guessing myself about the accuracy of this statement now, because while I know this is true for a circuit with resistors in series, I am not completely sure that this is true when the circuit has resistors that are in parallel, such as the circuit provided for this activity. ,

The sentence I have the most confidence in is “To calculate the voltage of this resistor, I would use Ohm's law, and find the voltage by multiplying the unchanging current by the decreasing resistance.” I am confident in my understanding of Ohm's law. As I stated in the box above, I am questioning the accuracy of the current through both R2 and R3. Even if I was wrong and the current is decreasing, the result of Ohm's law (decreasing voltage) would still be the result.

**

As R2 decreases, R3's electric potential remains the same because the two resistors are wired in parallel but since R1 is wired in series with R2 and R3 its power associated will increase because of the series connection. The power with VS increases because it is an independent voltage source thus its voltage is constant while its current is dependent on the rest of the circuit. I am least confident in the sentence of me saying that R1 increases because it is in series with pair of parallel resistors.I am most confident with my explanation of the electric potential not changing in R3 because of the parallel connection, I know the voltage drop in parallel resistors are equal.

**

As the resistance of R2 decreases, the equivalent resistance R23 also decreases. As the R23 resistance decreases, the overall resistance equivalent also decreases. This means that the current of the system should increase assuming the voltage source remains unchanged. As the current increases, the power associated with each element also increases, this means the power supplied by the Vs increases and the power dissipated by each constant element also increases. However, since the resistance across R2 is decreasing as the current increases, its power consumption remains constant. I am least confident in the first sentence, because my logic the equation to find the equivalent resistance might be backwards. I am most confident in, “The current of the system should increase...” I am fairly certain that the current should increase because dropping the resistance across that one path should create an increase in current at least at that point.

**

The current will across R1 then will spreat between R2 and R3 so if we need to add the R3 and R2 as parallel then ad them to R1 as serious so then we will have one resistor . so then we can calculate the power of all the circuit. I don't know but i feel i did describe my thought about this circuit.

**

When R2 decreases and the other component stays the same, the power will change according to the eq. P equals IV and in order to get I I have to use this eq. I equals V divided by R.

**

As the resistance of R2 decreases the power associated with the voltage source will increase as there is less resistance in the rest of the circuit. V equals IR, which means the smaller R is the more current will flow, and P equals IV the larger I is the more power is provided. The Power dissipated by R1 will increase because there will be a larger voltage drop over R1 as the equivalent resistance of R2R3 decreases as R2 decreases. As R2 approaches 0 resistance the voltage drop over it will decrease and the voltage drop over R3 will also decrease as R3 essentially becomes Parallel to a piece of wire. As the resistance of R2 decreases, I would want to say the voltage drop over R3 may increase. I am most confident in “V equals IR, which means the smaller R is the more current will flow, and P equals IV the larger I is the more power is provided. This is a simple use of formulas.

**

My first thought is that the Vs will always be providing power as there is no other source in the circuit, and resistors must be passive, so Vs is the only circuit element that can be providing power. The power of R1 depends on the only the current through Vs, which will depend on the equivalent resistance of R2 and R3. As the resistance of R2 decreases, more current will begin to flow through R2 than R3. This can be shown by using ohms law where current equals voltage over resistance. Lowering the resistance of R2 will also decrease the overall resistance in the circuit, which will translate into a large amount of current flowing through Vs, R1 and R2. However, because the voltage drop and resistance of R3 is not changing, the current through R3 will stay the same.

“Lowering the resistance of R2 will decrease overall resistance in the circuit ... .” I have the least confidence in this sentence because I have trouble analyzing resistor circuits in my head. Recalling the information on Resistors from EELE 101 and physics, I think that this is will be the case, but I am less confident.

“My first thought is that Vs must always be supplying power ...”. I don't question the accuracy of my first sentence because based on the circuit elements present in the circuit, the only element capable of providing power to the circuit is the voltage source.

**

I think that the resistance of R2 decreasing creates a sort of short across R3 the current will then be going through R(2,3) and it will be the same current going through R1. Current will be able to flow more freely then so the overall current through the series portions will raise through Vs, R1, and R(2,3). The power associated with R1 will raise from the equation power equals current multiplied by voltage the power through R2 will raise because even though there is a loss of resistance the current rising will affect the power exponentially given by power equals current squared multiplied by Resistance and the somewhat shorted R3 will have less current and the same resistance, and also have the power affected exponentially but making the power much less by the equation power equals current squared multiplied by Resistance. The voltage source power will also be affected since the current of the overall circuit will raise so by power equals current multiplied by voltage the power will rise. ,

The first sentence is actually one I had trouble with because I was going to write equivalent resistance of R(2,3) but since it's and added inverse relationship where the more resistances in parallel the less overall resistance, I'm somewhat unclear on the proportionality of one resistance value to the other. I just know what I stated is to a degree correct.

Other than my slight misunderstanding of the equivalent resistance I don't really see any shortcomings on my understanding of any of the other concepts of power current and resistance. Since I have to choose a sentence I'm comfortable with I'd say Sentence 2.

**

So for two resistors that are in parallel, the reduction of one resistance will actually increase the resistance of the total parallel circuit. In this case, if R2 is increased, the resistance of the loop containing R2 and R3 will decrease. But since they are wired in parallel with R1, to add the two together will yield a larger resistance since the denominator will be a smaller number which is how one adds parallel resistances. As a result, using V=IR, the current will decrease as the resistance of R2 decreases upon solving for current in that equation. Then that current value can be plugged into P=IV and compared to the original I value. Since the original I value would be more, assuming that Vs is the same, the total power of the circuit would be more in the original circuit (A more resistive R2). Symbiotically, this means that when the resistance of R2 decreases, the power associated with Vs would decrease. Since the total current would decrease, the power associated with R2 would decrease as well especially since the resulting voltage through R1 would be less than in the initial condition. Since R3 and R2 are in parallel, they split current and share the same voltage. Since the current would decrease for that whole branch of the system, and the R2 and R3 split that current, both of them will have a decrease in power.

I have the least confidence in my explanation of the power associated with R2 and R3, specifically R3. It is difficult for me to, in my head, qualitatively assign values to the separate resistors based upon their lower current. Although now upon thought, the total current decreases which means that the total voltage would decrease so I am very confident.

I have the most confidence in what happens to Vs because I feel that I understood the total resistance of the circuit pretty well which is what dictates current throughout the whole circuit and therefore dictates the power of each component in the circuit.

**

The equation for is presented as P=IV, and since in this case we are dealing with an ideal independent voltage source, the 2 values that are going to affect power are current and resistance. In this case when the resistance of R2 is increased then the resistance of the parallel branches will increase leading to an overall increase in the resistance of the circuit. using ohms law V=IR an increase in resistance while keeping voltage constant means a decrease in current. with this decrease the power of the Vs and R1 will decrease as they are in series and Vs is now receiving less current and R1 had a smaller voltage drop across it. However since the overall resistance in the parallel branches has increased that means there is a greater voltage drop across the R3 and R2. as for these resistors the power of R3 will increase as there is a larger voltage drop and its resistance remained the same therefore indicating a larger current. as for R2 an actual calculation is required for this resistors power to determine if it has increased or decreased. The last sentence is my least confident one. Without having numbers or being able mock up some numbers I am not sure whether or not the power would've risen or dropped just thinking abstractly. I confident in using ohms law V=IR an increase in resistance while keeping voltage constant means a decrease in current. as this can be seen in the equation.

**

As the resistance of R2 decreases then R equivalent will change. R3 and R2 are wired in parallel so when they are combined to R23 the combined resistance will be ((1 divided by R1) plus (1 divided by R2)) to the -1 power. So as R2 gets smaller, R23 will get smaller making R equivalent decrease when you add R1 to R23. I'm not sure if this is always the case because of how resistors are combined in parallel. Vs is the only voltage source in this circuit and it won't change so that means that the current will have to increase to make up for the drop in resistance using ohms law: V=IR. I am confident in this as If there is a drop in resistance, there must be a drop in either voltage or a rise in current. Therfore when calculating power; P=IV, V will not have changed but I will have increased making the power increase.

**

The current associated with R1 should stay the same, but R3 will have a lower current and R2 will have a higher current. Since the voltage source is a dependent voltage source, and R is decreasing in the circuit, V=IR will manipulate current to increase. Since Current increases, and Voltage stays the same, Power will also increase.

**

When the resistance in R2 decreases, the power associated with R1 , R3, and Vs will increase. This is due to the fact that the overall resistance in the circuit will decrease and with Vs constant, V=IR shows that current must also increase. Since the potential of Vs is unaffected the power must increase. For R1 the current is increased and therefore the power increases with it. As with R1, R3 shows increased power due to the equation P = IV, where V is constant and as shown I has increased.

I have the least confidence in sentence two, because I was not allowed to use paper and had to base all off my calculations off my minds eye. Sentence 3 is the sentence I have the most confidence in because there are few variables to screw up.

**

As the resistance of R2 decreases, the total resistance of the parallel branch that includes R2 and R3 will decrease. As the resistance of R2 begins to decrease more current will begin to flow through it than R2, thereby decreasing the power dissipated by R3. I'm unsure if this is true, as power is equal to the product of current and voltageAs the equivalent resistance of the circuit will decrease as the resistance of R2 decreases, the current flowing through R1 will increase thereby causing more power to be dissipated, by Ohms Law. I'm very certain this is true, as both statements can be mathmatically proven.The power created by the voltage source will remain the same, as it is unaffected by the passive elements in the rest of the circuit.

**

Because the equation P=IV, power is dependent on current and voltage. Ohm’s law, V=IR can be manipulated into I=V/R showing that when resistance decreases, current increases but voltage decreases, therefore it will not matter the Rvalues, power will stay the same! The will cancel the difference out.

**

The power will increase for Vs and R1 but decrease for R3. This is b/c the RT for the circuit will decrease, increasing the current, but R2 will take more current then R3 from the IT b/c current will choose the path of least resistance (R1 will also take more voltage I believe b/c the combined resistor of R2 and R3 will be less than before, but that's just a side note.)

**

As R2 decreases, while everything else remains unchanged R2 will see an increase in current and R3 will see a decrease in current. The voltage between the two will remain the same. At the same time the equivalent resistance in the circuit will be dropping. This is simply due to how equivalent resistance is calculated. In this case it would be Req=R1+(1/R2+1/R3)^-1. Also to explain why we would see a current increase is just due to Ohms law. We know the voltage going through R2 and R3 will not change since they are in parallel. So when we look at V=IR we can tell I, current, will fo up as R gets smaller. Going back to the equivalent resistance of the circuit it would stay around the value of R1, but the equivalent resistance of the parallel would go down. If that is the case we would eventually see not current in R3 and R2 would eventually have a resistance of 0.

**

The power associated with VS, R1, R2, and R3 all increase. As R2 and R3 are in parallel the voltage across them remains equal to eachother. As they are in parallel 1/Rtotal=1/R2+1/R3, if R2 decreases and R3 remains unchanged, then the Rtotal becomes less. Writing the circuit with the parallel components written as Rtotal in series with R1 we get Req=R1+Rtotal if Rtotal is smaller, then Req is smaller (based on R2 lowering Rtotal). As the voltage is not changed, bu Ohm's law (V=IR) with a simple circuit drawn as voltage source in series with Req, then to achieve the same voltage, there must be an increase in current to accommodate the decrease in Req. Therefore, as power is found as P=IV, with the same voltage and increased current, the power provided by Vs and dissipated in Req is greater when R2 is decreased.

**

The power associated with Vs and R1 should increase. This is because if R2 decreases then Req will decrease as well, this combined with a constant Vs will increase the current and therefore the power will increase. The power associated with R3 should decrease. This is due to that branch of the parallel pair (R2 and R3) should recieve less current because it is now less conductive in comparison to R2. I believe R2's power should stay about the same because its power is related to its resistance and in this case it is the driving force of changes in power.

**

First, I remember that it is the current that pushes the voltage through a resistor, not the other way around. Also I know I need to look at the circuit as a system. The power of the voltage source will increase slightly, when you look at the circuit as a system, lowering R2's value will lower the resistance of the entire circuit. A lower resistance means a higher current, more current with a steady Vs means more power (P=VI). The power being dissipated by R1 will slightly increase due to increased current. When it comes to R2 and R3 current likes to follow the path of least resistance so R2 will probably see an increase in power while R3, will feel a decrease despite the power of the circuit going up in general. This is assuming R2 decreased in value below that of R3.

**

As R2 decreases, the equivalent resistance of the total circuit also decreases. When the resistance decreases, the current of the circuit increases due to Ohms law V=IR. Since power is equated to P=VI, and current has increased, the total power of the circuit increases as a result of R2 decreasing. Now looking at each element. Vs: Since we established that the current through R2 increases due to Ohms law, the current going through Vs also increases while the voltage remains constant. This increases power. R1: R1 can be thought of as a pipe leading to two more pipes, all containing water. One of the pipes, R2 just got bigger, but R1 stayed the same. This means that R1’s power stays constant. R3 also remains constant due to the same reasoning power stays the same. R2 is now less resistant to current, which decreases power. This decrease is the same amount that Vs increases.

**

The reason R2 resistance is decreasing while the others remain the same is because of power and Ohm’s Law. Power is measure in watts and is given the equation P=IV and Ohm’s Law is measuring current through resistance with the equation I=V/R. Both have current in the equations and that must mean that this how they are connected. More simply than not, as you put more current through the R2, the resistance will begin to go down because this becomes the path of less resistivity. As current goes up, so will power and in turn start to decrease the resistance of the resistor.

**

The summation of R2 and R3 = (1/R2+1/R3)^-1. If R2 is decreased, then the total resistance of the circuit decreases; which allows for a larger current. Power is represented by P=IV, so iof I goes up, because of R2’s decrease, the power must go up as well.

**

The total resistance lowers since R2,3 would decrease because the total resistance of a parallel pair cannot be more than the lowest resistance. Power in total would increase since there is a set voltage and increasing current. R3 would gain more of the current division due to R2. At the same time R2,3 would have less of a voltage drops since its total resistance is lower. R3 could stay at the same power. R1 would have a major increase in power due to increasing total current and increasing division of voltage. R2 would naturally decrease since it current division, resistance, and voltage division would decrease.

**

My initial thought is that since all of these elements are ideal, then the power associated with them would not be affected by decreasing the resistance of R2. My second thought is that if resistance of R2 decreases, then current must increase in order to maintain the same value. But by increasing the current then the voltage must decrease in order to stay the same value because P=VI.

**

Req = R1_(1/R2+1/R3). I=Vs/Req. V=IR. So the current would increase as R2 decreases and since power – IV then the power would also increase.

**

As R2 decreases, the current across resistor 2 would increase due to Ohm's law. As the current increases, so would the power. That is to say, decreasing the resistance of R2 would increase the power associated with it. Due to the rise in current through R2 and KCL, the current through R3 would have to decrease. Because the resistor value remains the same, the way for this to occur would be through a drop in the amount of voltage across the resistor. Because both the current and voltage are decreased, the power through R3 would decrease, the power through R3 would decrease. The decrease in R2 would also decrease the effective value of R for Vs, increasing the current and increasing the power generated in Vs. Increasing the current of Vs would also increase the current of R1, increasing the power of R1.

**

If R2's resistance decreased the equivalent resistance of R23 would also decrease resulting in less potential being adsorbed over the parallel combination but more current passing through R2 which it would likely consume more power and R3 would subsequently consume less power because the resistance would be unchanged. More current through the parallel combination would also result in R1 consuming more power. Because the overall resistance of the circuit would decrease V1 would supply more power.

**

P=IV, V=IR, P=I^2R. As R2 decreases, the total resistance of the circuit decreases. And according to the equation V=IR if voltage doesn't change byt Req decreases the current must increase. Now looking at P=IV if voltage doesn't change but current increases than power must increase as well. As R2 goes to 0, it will begin to act more like a wire which would remove R3 from the circuit. This means that R1 would receive all of the current and potential difference in the circuit, thus increasing its power absorbtion. Vs would remain the same since it is the only supply of power.

**

The power used would increase because when the resistance drops then the current goes up. Since to find current is voltage over resistance. Then power is found with current over voltage sour as the current increases and the voltage remains the same and power increases.

**

The equivalent input resistance, Req, is known to be R1+(R2||R3). If R2 decreases, to does R2||R3, and thus Req decreases as well. Since IS=Vs/Req, if Req decreases, Is will increase. Also, when know that P=IV for any element. The above relationships tell us that PS will increase, along with PR1. Also, PR2 and PR3 should increase, since the current passing through each will also increase.

**

The power for Vs, R1, and R2 will increase this will happen because sence the resistance will go down for R2 the current will increase based on V=IR. With an increased current across R2 the battery will have to put out more current wich will make R1 have more current. More current means more power based on P=VI. The power on R3 will not change because nothing in the equation V=IR has changed so V and I will stay the same. Nothing will change at R3 because it is in parallel with R2.

**

As the resistance of R2 decrease, the power associated with Vs increases because the total resistance decreases – thus the current increases, because the power is a relationship between current (increases) and voltage (stays same). The power associated with resistors R1 and R3 also increases because the current increases. The power associated w/ R2 could decrease depending on how much the resistance decreases, because power is also a relationship between current and resistance. P=IR^2.

**

If R2 decreases then the voltage drop across it decreases as does the power. The voltage across R3 will also decrease as it is in parallel w/R2 as will the power. Power across R1 will remain the same, as will Vs.

**

As R2 decreases it becomes more like a wire especially if the resistance is at its lowest. If the resistor R2 becomes like a wire R3 is dropped from the total resistance because all the current will travel to the least resistance, R2. This means that the power in this circuit, represented as P=V^2/Rtot, would resemble more of P=V^2/R1 since R2 would practically be zero. This would cause the power to increase.

**

As R2 decreases, the resistance equivalent (Req) also decreases. When Req decreases, the system's current starts to rise since current is coorelated to Req and voltage (I=V/R). More current means more power at each element because power is directly coorelated to current. (P=IV) Since Vs doesn't change and neither do the other resistors so KVL has to come in but the voltage drop R2 is lacking is being picked up by the other resistors with the rising current. So with the decreasing R2, the power at the other elements would rise.

**

At the first node, the power between Vs and R1 do not change. Once it goes through the resistor, it has a potential difference across R1. After going through R2 and R3, the current and volatage that is, the potential difference will be lower. However, if the resistance of R2 decreases, the potential difference will increase, causing the power to become greater. It won't be an extreme amount, but it will change. If R2 decreases, then in V=IR2, the voltage will be greater across that R2. Which then allows P=IVR2 to become greater. With current remaining constant.

**

The current will increase if the resistance of R2 decreases, and the other components remain unchanged. If the current increases, the the power will also increase. Due to Ohm's law V=IR, the smaller the resistance the larger the current and plays into power found by P=IV. The larger the current with unchanged voltage, as stated above, the greater or larger amount of power will result.

**

The power associated with Vs and R1 will increase b/c/ the potential difference across these components remains the same while the current increases. The power associated with R2 will increase. As resistance decreases, current increases. Power is the product of current and voltage. Voltage remains the same and current increases, resulting in an increase in power. The power associated w/R3 will remain the same. Neither the voltage nor current changes at R3, so the power does not change.

**

As resistance of R2 decreases, the power associated with Vs and R1 stays the same, the power of R2 increases and the power of R3 decreases. If the resistance of R2 decreases, its current must increase if voltage is constant according to V=IR. If more current goes to R2, less will go to R3 according to KCL and the power of R3 will decreases. Changing R

**

We can see that "R2" is in parallel with "R1" and "R3" as we have V squared over Req. The power associated with R1 will be the same because it is in series and R3 as well. Being in parallel that means it decreases every time.

**

The power associated with the elements Vs, R1, R2, and R3 are independent of each other in this circuit. Therefore, to find the power in each element you would use the equation voltage equals current times resistance to find current or voltage if it is not given, then utilized power equals voltage times current to find the associated power. If the resistance of R2 decreases then the voltage drop across R2 would be less than it wold have been originally, which will result in a lower amount of power associated with the element R2. This will only relate to element R3 because they are in parallel and share a common potential difference. Therefore, if R2 decreases its voltage will decrease and be equal to the voltage drop on R3. This will in turn create lower power in both R2 and R3 which will have to be made up for in Vs and R1 to satisfy he fact that power is conserved in a circuit.

I am least confident in the last sentence: I am not positive that a small decrease in one element will allow for a power change in all elements that will allow them to continue to follow the rule of power being conserved. I am most confident in the third sentence. Based on the equations voltage equals current times power and power equals current times voltage I am confident that a small R value has to result in a lower amount of power.

**

As the resistance R2 decreases the power associated with VS and R1 remain the same. The power associated with R3 on the other hand should decrease, this is because it is wired in parallel with R2, and when R2 decreases resistance the current will flow more towards R2 instead of R3, simply because it has less resistance than it did before. Power equals current times voltage, therefore the less current that goes to R3 the small its power gets.

I am least confident in the sentence where I stated Vs and R1 remain the same, in terms of their powers. I'm not second guessing it but it just feels to me like they should be altered in some way by R2's resistance decreases. I have most confidence where I said R3 will decrease in power and lose some of its current. This is because I know that current wants to travel on the path of least resistance so if R2 loses some resistance the current will increase through R2 and since they are in parallel, decrease through R3.

**

R3 is a resistor that is in parallel with R2. As R2 decreases the value of R23 is going to increase. As R2 becomes a smaller number 1/R2 becomes a bigger number, consequently making R23 larger. This is going to make REQ (equivalent resistance across Vs) larger which will mean that less current passes across the voltage drop of REQ. Less current means less power through the circuit. Since R23 is increasing this will lower the power across R23. The power across R1 will also decline. Since that is all the resistors, consequently the power associated with Vs will also have declined.

I am least confidence in the sentence "As R2 becomes a smaller number..." Resistance calculations of parallel arrangements can be an easy place to make mistakes. Reciprocal of the sum of the reciprocals isn't exactly intuitive. I am most confident in the sentence "Less current means less power..." Power is the product of voltage and current, so when current decreases it would follow that power would as well.

**

R2 and R3 are in parallel, so the total value coming from those two resistors (in ohms) is less that that of either individual resistor. If R2 decreases that means the total resistance in that part of the circuit decreases. By current equals voltage divded by resistance I can tell that the circuit as a whole will have more power output as current will be greater as the total resistance has decreased. With a larger current and slightly smaller resistance you can tell power will increase by the equation power equals current square time resistance. Vs will have increased power output, R1 and the parallel resistors will dissipate more power.

I am least confident in the very end of my response, where I state Vs will have an increased power supply whereas the resistors will have a greater power dissipation. I am basing this off the conservation of power but am unsure if this is the answer were looking for.

I am most confident in my statements about the resistors and total resistance. I know two resistors in parallel will have a total value less that that of the smallest resistor, so with R2 being decreased R23 is now smaller. So when added in series to the unchanged R1 total resistance goes down.

**

As the resistance of R2 decreases, the power associated with R1, Vs, and R2 all increases. With less resistance, more current flows through. And more current with the same voltage is more power. The power through R3 will decrease because more current will now be going through R2 and therefire less current through R3. This happens beacuse the current entering a node has to be equal to the current leaving a node, so if more current goes into R2 then R3 will have less current through it than before.

I am least confident in the last sentence, I understand the information clearly but the way I wrote it could be confusing. I am most confident in the third sentence, because it is based off an equation so it is accurate.

**

R2 and R3 are in parallel, that means that when R2 decreases, the R23 equivalent resistance will decreases as well. Because of this, the total equivalent resistance will be lowering as well. This means in order for the Req to keep dissipating the same voltage, current will need to increase (Voltage equals current times resistance.) Because current is increasing, the total amount of power in the will increase. R2, although its resistance lowers, will still increase in power due to current increasing (Power equals current squared times resistance).

I am convinced of the accuracy of the last sentence due to current begin squared in power equals current squared time resistance. As the resistance lowers, the current increases exponentially.

**

As R2 decreases, the voltage drop across R2 does not (since Vs and R1 have not changed which R2 is in parallel with). The voltage drop across R2 equals current in R2 times the resistance of R2. This relationship implies the current in R2 will increase, this means the power of R2 also increases. As R2 increases, the total resistance decreases and the total current increases. The power of R3 remains the same; its voltage and resistance haven't change so neither has its current. I am least confident when I say “As R2 increases; the total resistance increases.” I may have misunderstood the relationship. I'm pretty sure current through R3 and voltage across R3 have not changed, and so neither has the power of R3.

**

The power associated with R2 should decrease because as the resistance decreases, the voltage also decreases. So, according to the power equation, power should also decrease. The power of associated by R1 and Vs shouldn't change. Finally, to allow for conservation of power, and also because R2 and R3 are parallel, which means the current current splits based on the resistances in each branch, the power dissipated by R3 should increase because it receives more current.

I am least confident in the sentence where I discuss the power associated wiht R3 because I don't quite remember current behavior rules. I am most confident in the sentence where I discuss the power associated with R1 and Vs because they aren't parallel with R2.

**

Power in Vs will remain the same because current supply of voltage and a consistant current. The power in R1 will also remain the same because the current running through it and the voltage will remain constant despite change in R2. Power in R2 will increase according to the equation power = voltage squared over resistance. The power in R3 will decrease because its resistivity will remain the same while R2 is in parallel and increasingly gaining power.

I think my second sentence about the power in R1 was least correct because I am not sure if the voltage source was affected by the decrease in resistivity. I believe my last two sentences about R2 and R3 were most correct because it seemed to directly correlate to the power equations and how they are related to one another.

**

In the problem we are to that V is a constant which would leave the power equations power equals current times a constant voltage. So the power is related to current. The equation for current would be Vs divided by Req. Since R2 decreases it will reduse the Req of R2 and R3. As it reduces the current will increase , thus increase power through source and R1. As R2 decreases it will start having more current that R3 so its watts will increase and R3 will decrease. As R2 approaches zero the total current will go through its branch and there will be zero voltages drop across R3 thus disabling zero power but R2 will dissipate zero as R2 is about zero.

I am least confident in the explanation of power change in the parallel branch. Its hard to imagine the rate of change of current as it forks. I am most confident in the power change in Vs. With simplying the circuit it's easy to see what happens as the resistance changes.

**

Thinking of this circuit as a system if one component changes everything changes. The equivalent resistance is R1 plus the parallel combination of R2 and R3. The current in the source is given by the voltage of the source divided by the equivalent resistance. The power associated with Vs will change because Req changes so the source current will change. The R1 will change because source current would be the current and that did change which means that power will change. The power through R2 will change. As R2 decreases, current will increase therefore increasing power. If current in R2 increases, so will VR3 because the voltage is the same through resistors in parallel so the power will also change.

All of the components as my answer rely on each other. It stems from what is happening at R2. And I say that voltage is the same through a resistor in parallel. I am not confident that it is voltage because it might be current that is the same. I know that the power through R2 will change. This is because I would use the equation power equals voltage squared divided by resistance because those would be two known values and if R changes, power will change.

**

As the resistance of R2 decreases, the power of the other elements will increase, as the current will increase -- voltage divided by resistance equals current. The current through R2 and R3 can be modeled by Vs divided by Req equals current. Because R2 equals one over G2, as R2 decreases, G2 increases. The source current also increases, as they are directly related. The equivalent resistance is R1 plus the parallel combination of R2 and R3. The current passing through the resistors will increase in a linear fashion. Power equals current squared times resistance and their power output will increase in an exponential fashion. The power of the battery will increase in a linear fashion as power equals voltage times resistance. I am not sure if the current flowing thru resistors applies to Vs. I am most confident in “Because R2 equal one over G2, as R decreases, one over G2 increases, current therefore also increases.” Math.

**

R2 and R3 are resistors in parallel added together so as R2 decreases the over all resistance increase as R123 equals R1 + R23 as the resistance increases overall the power decreases because more voltage will be resisted. The power across Vs and R1 will not be affected because they are in series with R2, but the power across R3 will decrease because R2 and R3 are in parallel meaning they split the current going through them. I have the least confidence in my last sentance because I'm not sure if my wording is correct about the resistors in series vs parallel. I am most confident in my statement about the overall power in the entire circuit decreasing because I know resistors in parallel add by their reciprocals causing an increase in resistance even though R2 is decreasing.

**

As R2 and R3 are in parallel, they will always have the same voltage difference across them, no matter their individual resistances. As R2 drops the total resistance in the circuit drops, as Rtot = R1 +R23. As the total resistance drops the voltage remains unchanges thus the current must increase. As the current increases the power supplied by Vs increases and since R1 doesn't change the power dissipated by R1 increases. The current in the circit will split proportional to the resistors in parallel, thus as R2 decreases more current will flow proportionally to maintain the same voltage as R3. As the voltage across R2 and R3 is equal and power equals current times voltage, as R2 decreases the power dissipated by R2 and R3 will increase.

I am least confident in the last sentence. This is because I am unsure what exactly would happen to the current through R2 and R3 as R2 approaches zero ohms. I am most confident in my first sentence. I'm confident that elements in parallel share a common voltage difference as it was explained that way in lecture.

**

As far as voltage across R2 and R3, both will have the same potential difference because resistors in parallel share the same voltage. Resistor 1 will have a constant resistance. As the resistance of R2 decreases the current through the entire circuit increases. Because the current has increased the power dissipated by R1 increases (if resistance remains the same). The power dissipated by R3 also increases because more current is supplied. Because the power of R2 is equal to current squared times resistance the change in the current has a greater effect on the power dissipated than the resistance so once again the power dissipated by R2 is greater as R2 decreases. Finally Vs must supply more power.

I stated that the power dissipated by R2 increased but I am unsure because although the current increased the resistance also decreased. This may cause resistor 2 to dissipate the same power. I am most confident in my statement that the current will increase throughout the circuit because the equivalent resistance decreases.

**

If we think about ohms law voltage equals current times resistance the voltage would drop as the total resistance in the circuit dropped. The power would increase as the resistor dropped because the voltage drop would be smaller meaning more power was running through it.

I am least confident when I said in my final sentence that the voltage drop would be smaller so there would be more power running through it. I feel as through I worded that wrong but I cannot think of another way of saying it. I am most confident when I said as the resistance decreased so did the voltage drop across that resistor.

**

The problem states that only R2 shall be decreasing in vlaue, all other elements stay the same. In the given circuit R2 and R3 can be said to be in parallel and represented by the equation R23 equals the inverse of the sum of one over R2 and one over R3. Since R2 is in the denominator the value of one over R2 will get larger as R2 decreased in effect making the value inside the parantheses larger. However, since the value is raise to the power of negative one, the value is inverted meaning the numerator and denominator switch. Thus in effect, decreasing R2's value raises the denominator in the end, causing the value of the resistor to be smaller. Since power can be calculated by using a combination of the power equation (power equals current times voltage) and Ohm's Law (Voltage equals current times resistance) to get power equals current squared times resistance, we can see that the power over element R23 will decrease as the resistance gets smaller. Since power in a system is conserved, the power over the other elements increases as there is more current flow.

The sentence that I am least confident in is when I talk about the power over element R23 decreasing as I got confused by the different ways you can manipulate the equations which led to a confusion on which variable were actually changing. The sentence I am most confident in is when I say that decreasing R2's value causes the value of R23 to be smaller. Using math I can prove that to be true.

**

As the resistance of R2 decreases the amperage increases for the R2 branch. This decreases the amperage in the R3 branch. Since the voltage and R1 remain the same, the amperage after R1 is the same even after the decrease. Therefore, the amperage returned to the supply is the same. Since Vs has the same current and voltage, the power supplied is the same. This also goes for R1, except power is dissipated by this element. Since current increases for R2 and Vs is constant, the power dissipated by the resistor increases. Finally, since the R2 branch draws more amperage, the R3 branch has less. The current through R3 is smaller but the voltage remains the same. The amount of power dissapated by R3 decreases. Since the voltage supply is providing the same amount of power, the circuit dissipates the same amount of power. The increase in power in R2 and decrease in R3 are proportional.

I am least confident in saying R2 decreasing increases amperage through the branch. Not sure if less power is supplied, but pretty sure of my answer. I am most confident in saying the amperage after R1 is the same after R2 decreases. Vs and R1 are unchanged.

**

The current across Vs and R1 remains the same, so the power associated with them remains the same. The current through R2 and R3 in parallel has to be the same going into the node as it does coming out. But, as the resistance of R2 decreases, the current flowing through increases. So the current through R3 decreases as a result of this. Looking at the equation for power in a resistor, power equals current squared time resistance, since the value of R3 is staying the same but the current is decreasing, the power associated with R3 is also decreasing. And since the current through R2 is increasing exponentially faster that the resistance is decreasing, the power associated with R2 must be increasing.

I am least confident in the last sentence. From my understanding of how circuits work so far, it makes sense. But there might be something I'm missing. I am most confident in, "The current across Vs and R1 remains the same..." It's a closed loop circuit so the current has to be the same throughout.

**

We know that the equation for power states that power equals current times voltage. We can also pick apart the problem and find each of the nodes. One way this problem can be solved is by using expiremental values for R2 and giving other theoretical values to the other components of the circuit. By using the equation power equals current times voltage this should be relatively straight forward. We also know that all resistors absorb power. Using the equation power equals current times voltage and plugging in values such as 20 V and 5 amps and changing the value of R we find that voltage is in direct corellation with resistance. As resistance increases so does voltage. There is a set amount of power that the circuit uses and for the power to be contained the power must be absorbed. As the resistance of R2 decreases and therefore uses less power then the other resistors will absorb more power to compinsate for this lab of power absorbtion. As a result Vs will produce the same amount of power.

**

Power is how much joules per second are used by the circuit. Since power is the product of voltage and current where voltage is how much energy it takes to move a unit of charge. If the resistance R2 decreases, then it will take less energy to move charge through the circuit. R2 and R3 are passive elements, so the power associated with them depends on the voltage drop across them. In this case, Vs is the only element in the circuit which can provide power. Because less power is used by the circuit, Vs will decrease and as a result will the power associated with R1, R3, and R2. This will happen to be in accordance with the conservation of power.

Im not entirely confident R1 and R3, passive elements don't draw a fixed amount of power. Since power is the product of voltage and current where voltage is how much energy it takes to move a unit of charge. By definition, this is what I have memorized and thus I have confidence in this sentence.

**

As the resistance of R2 decreases the power associated with R1 should stay the same as the current flows through R1 before it goes through R2. The power associated with R3 should go down assuming that R2 ends up at a lower resistance than R3, because when the current splits at the node that connects them the current wants to take the path of least resistance, as resistance goes down current goes up. Vs should stay the same as well as whatever change happened with the current split at the node going into R2 and R3 doesn't matter because the current will come back together at the node leaving R2 and R3.

"When the current splits at the node that connects them the current wants to take the path of least resistance." I don't know for sure that this is a real thing that happens but I feel like it's been mentioned before, and it makes sense with voltage equals current times resistance because to keep the same voltage association if R goes down current goes up. I don't know how that applies to R3 though.

"The power associated with R1 should stay the same because the current flow through R1 before R2." I think this is right because it seems like the main point the resistance drop would mess things up is at the node right after R1.

**

In order to determine what happens as R2's resistance decreases, it is important we discuss the base case scenario. Voltage is produced by the voltage source Vs, then enters R1. R1 dissipates based on its resistance level measured in ohms. After this, the current flows into R2 and R3 simulataneously, the resistance can then be modeled by R1 + one over R2 plus one over R3 because R1 is in series with the R2 and R3 resistors. R2 and R3 are in parallel. Now that we have observed the behavior of the function, we must determine what occurs as R2 decreases. Since voltage and resistance are proportional as modeled by Ohm's Law (voltage equals current times resistance), as resistance increases, so does voltage. However, this question arises for power associated with elements of our circuit, so in addition to Ohm's Law, we must also look at the equation power equals voltage times current. Power is directly proportional to voltage, and voltage is directly proportional to resistance. Now, we must combine all three equations. Therefore, as R2 decreases, the overall resistance decreases as well. As a result, the overall power increases because P and R2 are inversely proportional.

I am least confident in saying as R2 decreases. the overall power increases because power and R2 are inversely proportional. I'm afraid I made a dumb mathematical error that messed up the whole thought process. I am most confident in saying that the total resistance is R1 plus one over R2 Plus one over R3. Formulas are easy to verify and check.

**

Assuming the passive convention, the current is moving clockwise through the circuit. Due to KVL, R2 and R3 will have the same potential differences across them because they are in parallel. Thus, decreasing R2 will result in an increase in the power dissipated in R2 because in power equals voltage squared divided by resistance, the resistance is on the denominator. Furthermore, conservation of power requires that the power supplied is equal to the power dissipated. Vs will always be a fixed voltage supplying power, so that means all of power dissipated by the resistors R1, R2, and R3 have to equal power supplied by Vs. Therefore, as R2 decreases, and more power is dissipated by R2, then less power will be dissipated by R3. The power dissipated by R1 will remain unchanged because the current is not shared with anything, unlike how the current is split between the R2 and R3 branches.

**

If the resistance of R2 were to decrease, the power consumed by the resistor would increase. This is due to the relation between the voltage drop across the resistor, the current flowing through it and its resistance. The smaller resistance of R2 would increase the current flowing through it but maintain it's voltage. The decrease in resistance of R2 would also cause the current flowing through the entire circuit to increase, increasing the power consumption of R1. Vs would then be sourcing more power as well. The reason for this is the drop in effective resistance for the entire circuit. Since the voltage of all the components remains the same, only the current changes. R3 is the only component in the circuit that doesn't have a change in its power consumption. This is because the resistance and voltage drop across R3 remain constant, meaning its current must also remain constant. Because it is wired in parallel with R2, the increase in current caused by R2's lower resistance doesn't affect it. To summarize, the power sourced by Vs will increase and the power consumed by both R1 and R2 will also increase. Only R3's power remains unchanged.

"The reason for this is the drop in effective resistance for the entire circuit" is the sentence I feel is the most unclear due to the way I structured it and how I realized something while writing it. Although I don't feel it is incorrect, I would have prefered to word it differently. "Only R3's power use remains unchanged" is the sentence I am most confident in because I wrote it after repeatedly going over the problem and it is the most concise portion of my response.

**

Power is defined by the equation power equals current times voltage and it also conserved. The overall power in the system will not change as the sum of power leaving equals the sum of power entering and the power being supplied by Vs remaining consistant. That benig said, in order to maintain the same voltage across the circuit, R3's voltage difference would decrease. With less resistance flowing through R2, it will have more voltage and a high potential difference. R1 is not affected as much, but would see a slight decrease as the parallel circuit of R2 and R3 has less overall resistance and a high potential difference. R1's power would decrease, R2 would increase, R3 would decrease and Vs would remain consistant.

“R1 is not affected as much.” I am least confident in this claim because while I can visualize the fact that as the parallel circuit would have less resistance could cause a less voltage difference in R1, I do not recall the right way to model it with equations.

The overall power is conserved in the circuit. If Vs and the current remain consistant, then the power will not change on the resistances of the resistor. Power can be found independent of resistance.

**

Since all circuits conserve power, that means the combination of the supplying and absorbing power will be equal. Therefore, since we know power equals current squared times resistance, the current or amp value would have to increase at R2 to conserve power.

I am least confident in the part when I mentioned Amp or current because I'm not sure if that's the answer we are looking for. I'm most confident in my first claim because I know it's a true fact and that it's what I believe that it's needed to answer the question.

**

Power supplied by Vs will be dissipated across all resistors because they are passive elements. Power will be conserved regardless of changes in R2. R2 and R3 are in parallel, so the voltage across R2 will be equal to R3. A reduction in R2 will cause a total reduction in the circuits resistance, which will result in more current based on ohms law. An increase in current will cause R1 to dissipate more power because the resistance has not changed. The voltage across R2 and R3 will decrease, which is easier to see if we consider Reff equals the inverse of the sum of the conductances of R2 and R3. This formula means that the smallest resistance will still be larger than the effective resistance, and by Ohm's law this will cause a decrease in voltage as the voltage drop across R2 and R3 equals the source current times the effective resistance. The voltage drop across R2 and R3 will be smaller, by the current will be larger in R3 and R2. The current in R2 will be larger than before R2 changed but because R1 is now dissipating more power, the power of R2 will be (?) larger than it was initially. The power of R3 will be smaller, but the power will still be conserved through the circuit.

I am least confident in the power in R2 and R3 after change in R2. I do not know the power will compare after a change in R2, even though I believe theat I can accurately describe the voltage and current changes. I am most confident in the voltage change across the resistors in parallel and voltage changes in the circuit. I have a better understanding of ohms law than power especially when power changes.

**

As R2 decreases in resistance, the equivalent resistance of the circuit increases, because R2 and R3 are in parallel. As the equivalent resistance increases, power across the other resistors, R1 and R3 increases, while decreasing across R2. Vs remains unchanged.

I am least confident in the power increasing across R1 and R3. I am unsure how or if the current changes, which would affect the power.   I am most confident in the equivalent resistance increasing. Resistors connected in parallel have one over Req equals one over R1 plus one over R2.

**

As the resistance of the overall circuit decreases, the power associated decreases. Reffering to ohm's law where the current in the circuit is the division of voltage over resistance increased the current decreases. However for Vs as the resistance decreased the power associated is larger. For R1 and R3 the power is conserved. In the entire circuit the power is conserved.

"For R1, R3 the power is conserved." It is hard saying that as through our understanding of power is conserved throughout a system. The Vs, R1, R3 element are either unaffected or what I mentioned. As the overall resistae descreases the overall power associated decreases. Simply looking at power equals voltage times current overall I am convine of this understand.

**

As the resistance of R2 decreases because of Ohm's law, current will increase. Since R3 is wired in parallel to R2, as the resistance in R2 decreases, the current in R3 will increase.   Since the voltage supply is constant, the voltage drop will remain constant, so the power associated with R3 will increase. Since the total resistance of R2 and R3 in parallel decreases, the total resistance of the circuit decreases. Because of Ohm's Law, the current through R1 will increase. Again, since the voltage remains constant, the power associated with R1 will increase. Since the voltage across Vs remains constant, although the current increases, the power remains the same. I cannot remember if an increase of current through a voltage source has an effect on power. I am confident in saying "Since R3 is wired in parallel to R2, as the resistance in R2 decreases, the current in R3 will increase." I know that as resistance in one side of a parallel circuit decreases, the total resistance decreases.

**

All of the resistors dissipate power. Also, the sum of the power supplied equals the sum of the power dissipated this means that the only supply in the circuit is Vs. Thus, the power of Vs equals the sum of the powers of the resistors. Therefore, as the resistance of R2 decreases, resistors R1 and R3 must dissipate more power, in order to account for the lower amount from R2. If we imagine R2's resistance goes to zero (is just a wire) the equation for calculating the power would be power of the voltage source equals the power of R1 plus the power of R3. This verifies that resistors R1 and R3 would have to dissipate more power as the resistance of R2 decreases, this is true because power is conserved.

The third sentence in my response is the one I have the least confidence in. I am not confident that this would fully apply in the circuit, as R2 is in parallel with R3. I don't remember all the rules for resistors in parallel vs series. I am most confident about my first sentence. This is because it explains the fundamental nature of resistors. This allows me to then proceed in my explanation of the scenario, after making it known, the role of the resistor.

**

As R2 decreases in resistance the power that the other components use vary per component. Because when R2's resistance decreases the potential difference on either side decreases which results in a voltage drop. Power can be calculated unsing power equals voltage times current so if the voltage is going down, the power goes down in that component. So when R2 loses resistance, it also loses power. R3 is is connected in parallel to R2 so as R2 decreases the equivalent resistance between the two resistors also decreases. So R3 would most likely decrease in power usage since power must conserved. Some goes for R1, it would decrease in power usage as well. So Vs must increase in power to make up for lost power from the resistors to make sure power is conserved in the circuit.

I am least confident in my reasoning for why the power in R3 and R1 decreases. This is because I don't recall the exact relationship between resistance and power when there are multiple resistors in a circuit. The most confident part of my response is why R2 is decreasing in power. This is because I mostly remember what happens to the voltage when resistance drops, where power is mostly dependent on voltage in the equation I used.

**

R2 is in parallel with R3, so when R2 decreases the combined resistance of R2 and R3 increases. This causes a decrease in current, so power equals current times voltage will have a lower values, therefore the power decreases when R2 decreases.

I am least confident in the one where I claim when R2 decreases, the combined R2 and R3 produce a greater value. I question it because I remember that as a property, but as I think about R2 times R3 divided by the sum of R2 and R3 that seems incorrect. The reverse actually happens. I am most confident in the one where increased resistance reduces current. I'm confident because the math seems to agree with my thoughts.

**

As R2 is decreasing, the total resistance in the circuit decreases. Since that's the case, the power supplied from the voltage source increases. Also, the power dissipated in R1 and R3 increase due to the influx of power supplied from the voltage source. This also means that the power dissipated in R2 is decreasing due to the resistor value decreasing. I am least confident in the sentence explaining that the power dissipated in R2 is decreasing because I'm not quite sure if it is or not. I am most confident I the sentence explaining that the power supplied from the voltage source is increasing because by the equation power equals the source voltage squared divided by the equivalent resistance, the total resistance decreasing makes the power increase.

**

As the resistance of R2 decreases the equivalent resistance of R2 and R3 increases and since R23 is in series with R1 The equivalent resistance of the circuit increases. Therefore the current through Vs increases and since V is constant, the power associated with Vs increases "power equals current times voltage." Additionally, since the current through Vs increases the current through R1 increases, but the voltage decreases since R23 increased. Therefore, the power associates with R1 decreases. In addition, R2 and R3 are in parallel. As R2 decreases, the current through R2 increases due to ohms law current equals voltage divided by resistance. Since the current increases in R2, the power increases "power equals current times voltage. Since R2 and R3 are in parallel, the voltage across R2 and R3 also increases. The power through R3 increases as well, since the equivalent resistance of R2 and R3 increases, the voltage across R2 and R3 increases and since power equals voltage squared divided by resistance, the power through R3 will increase.

I feel I don't have enough strong reasoning behind the sentence "The current through R1 increases, but the voltage decreases since R23 increases."

**

In the circuit above, the resistors are in a combination of series and parallel because R1 received the total current before being split off at node x. Then, R2 and R3 are in parallel so the total resistance of the circuit is equal to R1 plus the inverse of the sum of the inverses of R2 and R3. As a result, if R2 decreases then the total resitance will increase due to the inverse nature of resistors in parallel.

The sentence I am least confident is about the total resistance because I had to take time to write out and figure out how resistors in parallel add and make sure of the inverse relationship. I am most confident that R1 is in series and R2 and R3 are in parallel because of the node and KCL splitting current in the two loops.

**

The circuit shown consists of 1 voltage source and 3 resistors. Since there is only 1 voltage element able to provide voltage, Vs it is safe to say that it supplies the voltage to the rest of the circuit. This means that current will flow clockwise around the circuit. Drawing out the nodes in the diagram we can see one connecting Vs and R1, another connecting R1 with R2 and R3, and a final one connnecting R2 and R3 with the - terminal of Vs. R2 and R3's connections to nodes 2 and 4 say they are in parallel. Pararallel resistors have a Req lesser than either of the resistors. If one of these resistors has a lower resistance, though, the Req will also drop. An expression for current across the Vs can be derived from Vs divided by Req equals current, where Req has the Req of the parallel components plus R1, which they are in series with. As

R2's resistance drops, so does the Req of the whole circuit, that means a higher current will flow thru Vs and R1, meaning Vs's power will increase. In the parallel part of the circuit, the new, extra current will go thru R2, which will have the same voltage drop as before, so its power increases. R3 will get less current, meaning its power decreases, and R1's increase current will make its power increase.

I feel very rushed with this, and being encouraged not to use equations makes it harder. Especially since, for all the resistors, their values in relation to each other matter, as they may be getting different amounts of current and voltage depending on that

**

As the resistance of R2 decreases, the power associated with all the other components will change. Since R2 is in parallel with R3, as the resitance of R2 decreases, the current through R3 will also decrease, becasue with less resistanace on R2, it's current will increase. With both R2 and R3 being in parallel, the voltage across them will be the same. Since R3's current is decreasing, but resistance is constant, using the equations power equals current squared times resistance the power across R3 will decrease. For resistor #2, the reistance is decreasing, but the current is inceasing, and in the equation power equals current squared times resistance current's value is squared, thus the power will be increasing, until the resistance is equal to zero. For R1 the resistance is constant, but the overall resistance of the circuit is decreasing, thus the power dissipating at R1 will increase as R2's resistance decreasing. Vs is at a constant voltage, but the resistance of the circuit is decreasing because of R2's resistance decreasing. Thus, using power equals current times voltage with voltage constant and current increasing, the power supplied at the voltage source increases over time.

“With both R2 and R3 being in parallel, the voltage across them will be the same.” While I know this to be true, it lacks relavancy to the problem how I solved for the power at R3 and R2. “As the resistance of R2 decreases, the power associated with all the other components will change.” I am convinced it is accurate because it is a quite broad and all inclusive statement, that is vague on how the other components actually change.

**

The power across Vs, R1 and R3 should stay the same if you look at the larger loop drawn on the circuit. If we look at the smaller loop Vs and R2 should really be the only two that have the biggest change. For R2 since the resitance is decreasing this will also decrease the amount of power being dissipated, which will in turn decrease the amount of power from Vs being supplied. And since there would be no current traveling through R3 in the smaller loop, the power for R3 would equal 0 W.

I am least confident in, can I say all of it? lol. But no. When I talk about the power across Vs to me it makes sence that the power would decrease because one of the resistances is decreasing and if it didn't that would interfear with the flow of conservation. But also power equals current times voltage for the Vs and there isn't really a change in the current (at least I don't think) sooo ... yeah.

**

As R2's reistance drops the current will go up cause the current through R3 to decrease since ther are in parallel. The current drop in R3 will cause the power to drop as well because power and current are directly related. Voltage in components will remain the same. The power in Vs and R1 will not change because the total current in the circuit will remain the same as before R2 dropped in resistance. The only is R3 will lose power as a result of R2 getting more current, which is being taken from the parth of R3.

I have the least confidence in claiming all of the voltages remain the same because I assume voltage won't change due to a drop in resistance since total voltage drop has to be zero but am not 100% how to explain that. But if I3 drops and R3 remains the same then Vs drops. I am most confident in claiming power in Vs and R1 will remain the same because the voltage won't change and the total current won't change therefore voltage times current equals power which in turn won't change.

**

As the resistance of R2 decreases in the circuit, more current will travel down R2 instead of R3. This is because there will be less resistance in R2 and current wants to travel down a path with less resistance. As current is able to travel through the circuit while enduring less resistance, the power associate with R2 will go up and the power associated with R3 will go down. This is because P=IV and the current going through R2 is increasing, which causes the powerassociated with R2 to increase. By the same logic, the current going through R3 decreasing will decrease the amount of power associated with R3. The power associated with Vs will stay the same because the voltage source is ideal. The power associated with R1 will also stay the same because it is directly after Vs and the associated power of Vs doesn't change.

**

Given the circuit shown, if the resistance of R2 decreases the power level associated with Vs, R1 and R2 will increase. This is because as R2 resistance drops R2||3 drops as well making the Req go down. This in turn makes the current increase based on Ohm's law. As the current increases the power will follow. Power associated with R3 will decrease due to the voltage drop across R3 going down.

**

In this circuit the total resistance is R1 plus the parallel combination of R2 and R3. If the resistance of R2 decreases, then the total amount of resistance of the circuit will decrease as well. If the resistance decreases, then the current increases throughout the circuit so that the voltage can remain the same. With more current and the same amount of voltage on the Vs element, the power in the Vs element will increase. The power associated with R1 will increase because the voltage will increase and the current will increase meaning the power across R1 will also increase. The voltage increases in R1 because with lower resistance in R2 causes the current to increase in the whole circuit which means that the voltage needs to increase if the resistance of R1 stays the same. Since the voltage of R1 increases, the voltage of R2 and R3 decrease because of Kirchoff's voltage law. If the voltage of R2 decreases, the resistance decreases, but the current increases, but the current increases, the power in R2 will increase, because the two equations (power equals current squared times R and power = R divided by voltage squared) show that with an increase in current and decrease in voltage, the power will increase. If all the elements increase in power except R3, it has to decrease to conserve power.

**

The power associated with the voltage source will remain the same along with the power associated with R1, R3. If we decrease the resistance of R2 the power going through the resistor increase. This is because resistor are dissipating elements therefore if there is less resistance the power through it increases.

**

Since R2 is slowly decreasing the resistance of the whole circuit is increasing. Since there is more resistance the current in the circuit will decrease as well, thus causing the power of Vs to decrease since power equals voltage times current. R1's power as well decreases since current is lowering and the same happens to both R2 and R3.

**

With the resistance of R2 decreasing, each component's power it is associated with will change. I can make an equation by finding the equivalent reistance of all three resistors... First combine R2 and R3 in parallel and then second combine R23 and R1 in series. Now that I have an equation the equivalent resistance of the circuit, I can use Ohm's Law to determine the voltage and current associated with each component. The current in Vs is Vs divided by the equivalent resistance. As R2 decreases, the power associated with Vs increases. The current in R1 equals the current in Vs. As R2 decreases, the power associated with R1 increases. As R2 decreases, the power associated with R2 decreases as the change in power of R2 equals Vs squared times R2. Same for R3 as R2.

**

As the resistance of R2 decreases, the overall resistance of the circuit will decreases. The power supplied by Vs must equal the power absorbed by the other components. The current in the circuit will increase, however, as the resistance drops, less current will travel through R3 as R2 falls, so the power absorbed by R3 will decrease. Overall, as R2 falls, more current will travel through R2 and it will absorb more power. The combined R23 resistance will also decrease so more current will travel through the circuit and R2 will absorb more power. V is constant as R2 falls, and since V equals current times resistance, current will linearly increase as resistance decreases. Howver, power equals current squared times resistance, so as resistance fall, current increases power faster. Vs will supply more power as it must supply more current, so power supplied by Vs will increase. R3 will have less current because the path through R2 will have a relatively lower resistance, so R3 will absorb less power.

**

The total resistance for the circuit will go down as parallel resistors have a combined resistance of one over R2 plus R3 which causes the total resistance to decrease as the R2 resistor decreases. This would cause the current to increase as the voltage remains constant. This is similar to the ideas that if the R2 resistor had zero resistance, the R3 resistor would be cutout. The current increases which requires Vs to supply more current with the increased current R1 would dissipate more power. Following this, R3 would have to remain the same to maintain the same voltage difference as across R2, the power of R2 would increase to maintain the same voltage, requiring more current due to the decreased resistance.

**

If the resistance of R2 is decreasing, this tells me that the resistor cannot sustain the amount of current that is flowing through the circuit. While on the other hand, resistors R1 and R3 must be bigger and are able to handle the current. In time resistor R2 will fail and alter how the power is dissipating through the circuit. This will then cause a single loop that will flow only through R1 and R3 and then back to the battery.

**

As R2 decreases, its power will increase. This increase of power in R2 will cause a decrease in power in R3. This is because as R2 decreases, the current through R2 will increase. Then using the power equation power equals current squared times resistance, you will find even though R is decreasing, the increase in current will have a bigger effect. R3 is directly effected because with an increase in current in R2, there would be a decrease in current in R3. However, the decrease in resistance of R2 would actually cause the equivalent resistance of R23 to go up. This would lead to less current in the circuit as a whole, which would cause the power through both Vs and R1 to decrease.

**

To start the power in R2 would increase because power equals current squared times resistance and as resistance decreases current increases along with power. The power of Vs would increase as the current through the entire circuit would increase. The current in R1 would not change as it is before the node of R2 and R3, therefore the power for R1 would also not change. However the power for R3 would change as the sum of currents in equals the sum of currents leaving. So as R2 increased R3 would decrease to counter balance therefore meaning power would increase. The reason R2 would affect R3 is because they are in parallel and the current leaving R1 has to split down to R2 and to R3. So as R2's current increases as its resistance decreases it is taking some of the current going to R3 making the current through R3 decrease along with its power.

**

The power associated with Vs, R1, and R3 will increase as R2's resistance decreases as it will result in a lower Req meaning a higher current will result, thus increasing power. That is, since R2 and R3 are parallel, a reduced R2 would lead to a reduced R23. Thus, since R23 is in series with R1, a reduced R23 would lead to a reduced Req. Since it is assumed that the voltage drops of each element do not change, Ohm's law would reveal that the reduced Req results in a larger current since Vs will remain the same. With a larger current reaching each element while their potential differences remain the same results in a greater power associated with each element.

**

We know that the relationship of power is directly associated with that of resistance. Knowing the equation for power is power equals current squared times resistance we can come up with example numbers to determine the answer. Using ohms law to solve for current we know that as total resistance increases, current decreases. Therefor as total resistance decreases, current will increase. As the resistance of R2 decreases the power of Vs increases. We know this through using the power rule. For voltage the less resistance the more power. In conjunction to this the power level of R2 decreases. We know that for all the other elements to remain unchanged, in order to get an increase in power at one place, it must come at the cost of another. Due to the current increasing as the resistance decreases it must all flow through R1. Knowing power equals current squared times resistance we know that the power of R1 Also increases. For R3 we must take into consideration that it is in parallel w/ R2. In other words it recieves the same current as R2. Using the same logic as for R1 and knowing that power must be conserved within the circuit we can determine that the power level of R3 increases as R2's decreases.

**

As the resistance of R2 decreases more current is allowed to flow due to ohm's law. This means that the current flowing through R1 and being provided by the voltage source must increases as well. Since R2 and R3 are in parallel, as the resistance of R2 decreases the combined resistance of R2 and R3 decreases meaning there will be a greater voltage drop across R1. More power is supplied from the source which means R1 will dissipate more power. Less current will move through R3 so it will dissipate less power. The circuit can be simplified by R1 plus the parallel combination of R2 and R3. As R2 decreases the voltage across R2 and R3 are equal and more power is dissipated over R1 as the voltage drop across the parallel resistors decreases.

**

R2 and R3 are in parallel. This means that their equivalent resistance is modeled by the formula R2||R3 equals the inverse of 1/R2 + 1/R3. From this formula, we can see that as R2 decreases in value, the equivalent resistance of R2||R3 decreases as well. If the equivalent resistance decreases, the resistance of the whole circuit decreases because R1 is in series with R2||R3 and the equivalent resistance of the circuit is just the sum of their resistance. Req =R1+(R2||R3). Now since the Vs is independent, voltage won't change. However, the current provided by the source will change because the total resistance has decreased. Since current has increased, the power supplied by Vs has increased as well. Since R1 is in series with Vs, the power it dissipates has increased as well because current has increased. Power dissipated by R2 has increased because more current is flowing through it. Power dissipated by R3 has remained the same because V or R hasn't changed.

**

Power is defined as current squared times resistance so power is directly proportional to resistance. If the resistance decreases, the power associated with Vs will remain the same as well as the power associated with R1. Current in a series will remain constant while voltage across parallel node will remain the same. This means the voltage flowing through R2 and R3 is the same. If the resistance (R2) decreases the current flowing through R2 increases as they are inversely proportional. Therefore, the power associated w/R2 will increase because the current has increased. The power associated w/ R3 will remain the same, since the current flowing through it will remain the same, since the voltage flowing through it has remained unchanged.

**

Because Vs is an ideal voltage source the potential difference in the circuit will not change, so as the circuit's resistance decreases, the power supplied from Vs must decrease to maintain conservation of power. (Net power in the circuit must = 0). The power dissipated in R1 will remain the same because the poential difference across it does not change. The same amount of potential will be at R2||R3 but the resistors will have less resistance. The voltage will split and R2 will get less than with high resistance so less power. R3 will have the same power consumption because it will

**

The circuit is setup so that Vs and R1 are in a series while R2 and R3 are in parallel. R2 is the only resistance value decreasing while every value is constant as given. Starting with the elements in series (Vs and R1), the power associated with them remains unchanged as the resistance of R2 decreases. There is a constant current at both of these elements because they are in series, as well as a constant voltage, and power is equal to the product of voltage and current and so power must also be a constant for these two elements. While this series circuit leads to the parallel circuit, KCL requires the same current going into the parallel circuit to also come out, therefore the current is constant at Vs and R1. In regards to the power at R2 and R3, the power at R3 will decrease, because as R2 decreases in resistance, the current will choose the path of least resistance in a parallel circuit as much as it can, so more current will start to go to R2 and less to R3. Since the current is decreasing at R3 and current is proportional to power, the power at R3 must also be decreasing. Finally, at R2 the current is increasing while the resistance is decreasing, and the voltage is proportional to both current and resistance, so it will remain unchanged since one is increasing and one is decreasing. Since voltage remains the same and the current is increasing, then the power associated with R2 must also be increasing.

**

If the resistance of R1 decreases it lowers the effective resistance of R2 in parallel with R3 thus lowering the total effective resistance of the circuit. In turn it would increase the current in the circuit. The increase in current would then effect the power of the elements, power being the product of current and voltage. Vs would increase in power. The resistors would also increase their power to equivalently proportion the power output of the voltage source.

20

The voltage across R2 and R3 will always be equal. But current will be split between the two. As R2 decreases the total resistance will increase causing the total circuit in the circuit to decrease. As R2 decreases the voltage drop across R1+R2 will increase as the v-drop across R1 will decrease. So the power will decrease in R1, increase in R2 and increase in R3. The total power created in Vs will decrease. Because the voltage drop across R2+R3 increases and the current across R2 increase but drops across R3, the amount of power absorbed by each element is unclear with out resistance values and known voltages. R3 could keep the same power consumption under the right value changes. The voltage would increase, current would decrease, so it is possible that these values may create the same power if the change appropriately.

**

Rtotal equals R1 + (R2||R3) The total resistance of the circuit is calculated by adding R1 in series with the parallel combination of R2 and R3. In parallel the sum of the resistors is less than the individual values. Thus as R2 decreases RT decreases, which increases the amount of current in the circuit. This is supported by Ohm's Law, V=IR. Therefore, the power in the circuit increases across all components, up to a limit. If R2 = 0, then R3 would be shorted out. At this point Vs and R1 would be the only components that have power. When R2=0 the power would be at its maximum value, for the given circuit, as the total resistance is only R1. We can see that R2 goes to zero, I increase, V remains unchangedm and P increases.

**

As the resitance of R2 decreases, the equivalent resistance in the circuit will decrease, which by Ohm's law means the current will increase throughout the circuit. The voltage drops across each resistor will also be affected. R1's voltage dropp will increase more than R2's or R3's, however R2 and R3 will have the same voltage drop because they are parallel to each other. depite the voltage drops changing across R1, R2, and R3, their potential energies still have to add up to be equal to the potential energy of Vs. When it comes down to the power with each component of the circuit, they all should experience an increase. However, the resistors -R1, R2, and R3, will be absorbing energy while the voltage source -Vs- will be supplying power. This is because I've made the assumption that current will be flowing from high to low potential following the passive convention in each resistor while flowing from low to high potential in the voltage source. Power must be conserved which means the power associated with R1, R2, and R3 has to be equal to the power associated with Vs (power dissipated = power absorbed).

**

So to start off I will define the power equation: power equals current times voltage or power equals current squared times resistance. R2 and R3 can be rewritten as one resistors R23. Next we will think about ohms law witch is V=IR, we can rewright that as I=V/R, so resistance controls the current and current is proportional to power, so as resistance decreases, power of the circuit decrease. Also side note R2 and R3 are cnected to each other so which ever resistance is smaller that one is going to have the largest impact on the circuit.

**

The power associated with Vs, R1, R2, and R3 should decrease. R2 and R3 are in parallel so you can combine them to find the total current going through the system. With decreased resistance in R2, a smaller amount of current would be needed to go through the . Power is defined as voltage times current, and with a decreased current, a decreased power should follow. (Voltage across the resistor or source).

**

Since power is conserved and the voltage drop of R2 and R3 will be the same, as R2 decreases the current will rise to keep the same voltage drop R3 does. But to keep and KCL laws the current in R1 and conseqently Vs will rise. So the power of R3 will stay the same. The power of Vs, R1, and R2 will rise due to the rise in current in R2.

**

We know that by viewing the circuit that the voltage source (Vs) could be supply power against the passive convention. We can assume the convention of the rest of our components, hopefully showing out currents flow. By assuming our polarity we can start to see where our charges flows and can start to determine the power and reason of decreasing in R2. First lets use KCL to see how current looks with our first loop and second loop. With node current we can show all current is conserved. This means we can assume all current is equal and we will label it as I. Power is determined by the current and voltage, but we can also define it by resistance. With our power solved we can now determine that the power of the components R1, R3, and Vs will remain unchanged. However, the power of R2 will decrease as the resistance declines. This does means that the voltage drop over the resistor will also decline. However, the power of our other components should remain consistent since the current is always constant in this circuit.

**

The current is going clockwise. R1, R2, R3 absorb power as R2 resistance decrease. The power more likely go through R2 and cause short for R3.

**

We are focusing on the power of the elements, which means the only factors to change are voltage and current. The resistors will restrict current when given a higher resistance. Therefore when R2's resistance decreases, more current will flow through it and the current through R3 will decrease. R1's current should remain the same due to KCL. Vs just supplies a constant voltage so the current from it should also stay constant. Essentially total voltage and current have to be conserved so only R2 and R3 change current because they are in parallel, which means voltage across them stays the same. Because the current increases in R2 when resistance decreases, power increases. As for R3 the current decreases, which in turn decreases the power.

**

As the resistance of R2 decreases, the power associated with Vs will remain unchanged, because it is an Ideal Voltage Source and the voltage supplied by it and current running through it will remain the same. So, according to P=VI , the power will remain the same. The power associated with R3 will go down because less current will run through R3, as there is now less resistance through R2. The power associated with R1 will decrease, because according to V=IR as resistance decreases, voltage decreases, causing power to decrease because P=VI. The power associated with R2 will remain the same as more current will go through it, but there will be less of a voltage drop across it.

**

In the circuit there are 3 total Resistors. Resistors R2 & R3 run in parallel, because of this their resistance is linked in a way. When the resistance of R2 is decreased the combined resistance of R2 & R3 is decreased as well. However it doesn't decrease by the amount R2 is decreased by. The function of parallel resistors needs to be considered 1/(1/R2+1/R3). With less resistance more Amps are needed to maintain the same voltage. Power increases when resistance of r2 decreases because the current increases.

**

The power associated with the circuit is a matter of wattage. Wattage is given by voltage times amperage. Since resistors must be passive elements, we only have 1 voltage source. This means voltage is constant. R2 and R3 are in parallel, so as R2's resistance decreases, it decreases the overall resistance of the circuit. Ohm's law says that voltage must equal current multiplied by resistance. Since Voltage is constant, as resistance decreases, amperage must increase in order for them to multiply to the same value. Since Voltage in the circuit is staying constant and amperage is rising, wattage, or power in the circuit, must also be rising. This is also true on the component level for Vs and R1. As the current increases, the voltage source must put more energy into the circuit; R1 must increase the voltage drop across it. Since R1 had its voltage drop increased, and R2 and R3 are in parallel, and voltage is constant within the circuit, despite the increase in current, R2 and R3 are probably dissipating less power.

**

As the resistance of R2 decreaces the power assosiated with the elements Vs and R1 will increaces. This is due to the Resistance of the circuit dropping while the voltage remains the same. This causes the current to rise which in turn cause the associated power to rise. The power associated with R2 will also increase in current, while the current in R3 decreaces due to the resistance drop causing power associated to fall. This happens due to the increased current through R2.

**

The power in the circuit (not just a resistor) depends on the current and the voltage. Since R2 and R3 are wired in parallel they will have the same voltage drop accross them. However, when combining R23 using their inverses, if R2 goes down, the overall resistance in the circuit will decrease. However, Vs will not change. In order to compensate for the decrease in resistance, the current in the circuit will increase. This increase in current will increase the amount of power in the circuit (esp as Vs didn't change). Therefore, the overall power in the circuit will increase, even though the power dissapated in R2 has decreased.

**

1. The first thing I would do is simplify the circuit to make thinking about R2 easier. R23 is the equivalent resistance of R2 and R3, not their individual resistances added together.

2. Because R2 and R3 are in parallel, their combined resistance is less than R1 or R2. (1/R1+1/R2)^-1 As R2 decreases, the 1/R2 term in the equation increases. That makes the inside of the parenthasis have higher and higher values. But since the sum of resistances is raised to a -1 power, the combined resistance approaches 0.

3. As R2 decreases, the total resistance of the circuit decreases. As R2 approaches 0 ohms, the circuit starts to look like this: (figure of circuit with Vs and R1).

Initial Power: P=IV, P=I(V_R1+V_R23) <- sums to Vs, P=IVs, Vs=IR <- lower current and higher resistance

Since P=IV: Final Power: P=IV <- V gets Vs, Vs=IR higher current and lower resistance

Voltage stays the same, current increases as R2 decreases. Therefore: Power increases as R2 decreases.

**

R2 and R3 are in parrallel, which means as the resitance of one goes down, the combined resistance goes down. This causes the overall equivalent resistance of the system to go down. As there is a single voltage source the voltage the voltage across R1 and R23 must remain the same. The voltage drop across the circuit with the total resistance can be explained with Ohms law, V=IR, because the voltage is constant and the equivelant resistance has gone down, current from Vs must increase. This causes the Power of R1 to increase, the power of R3 to decrease and R2 to increase. This is because more current will flow through R1 and R2 as R2 has less resistance than R3. This change can be modeled with P=I^2R for resistors, meaning current contributes more than resistance to the power disipation of each resistor.

**

First, we know that the value of R2 will effect the equivalent resistance of the circuit. Through Ohm's law we see that this effects the current of the circuit. Then we need to see how decreasing R2 effects the current, as in does it increase or lower the current. Since R2 is parallel with R3, the resistance of R23 will decreases when R2 decreases, and therefore Req will also decrease. Through Ohm's law we see that less resistance means more current given V remains constant, (which it does in this case). Through the power equations P=IV=I^2R an increase in current means an increase in power for vs, R1 and R3. Since the relationship of P=I^2R isn't linear, the power dissipated at R2 still goes up even though R2 decreases.

**

It is important to note that R2 is in parallel with R3, both of which are in series with R1. As Vs is the source, its voltage should not change. Voltage does not change from components in parallel, and current does not change from components in series. By the formula 1/(1/R2+1/R3) for calculating resistance in parallel, decreasing the resistance of R2 will decrease the total resistance of the parallel circuit, which, by Ohm's law, should increase the current. By the same principle, more current should go through the path containing R2. Therefore, the power associated with R2 and R1 increases, R3 most likely decreases, and Vs should stay the same.

**

As the resistance of R2 decreases, the power associated with Vs and R1 increase. This is because the total, or equivalent, resistance in the current will go down thus increasing the current going through Vs and R1 which in turn increases the power associated with them. Additionally, as R2's resistance decreases, the power associated with R3 decreases. This is because current will take the path of least resistance and R2 and R3 are in parallel, so R3's current will go down and therefore so will its associated power.

**

The power associated with Vs will change, this is because the equivalent resistance will be different due to a decreased value in R2. The power associated with R1 will remain unchanged. The power associated with R2 and R3 will change equally due to the fact that they are in parallel. Since the voltage drop across R2 will decrease, that must mean that the voltage drop across R3 must drop as well. This is because voltage never changes in parallel connections. Due to the fact that the voltage decreased across R23 then the power associated must decrease as well.

**

As the resistance of R2 decreases, more current will flow through it. Because the current entering node A (labeled on the diagram, the connecting node between the three resistors) is then split into the current exiting towards R2 and the current exiting towards R3. If R2 receives more of this current, then R3 must receive less. THerefore, since power can be expressed as current squared times resistance, meaning current will have more effect on power than resistance, and R2 has more current, the power dissipated by R2 will increase, and the power dissipated by R3 will decrease. Since the circuit has a lower total resistance and voltage is constant, the current will also increase R1, resulting in it dissipating more power. Since the current was increased with Vs staying constant, Vs will provide more power.

**

As the resistance of R2 decreases, the power associated with Vs and R1 increases. This occurs because the total resistance in the circuit decreases. Thus, more current flows because of Ohm's law. With more current, we get more power. The voltage across R2 and R3 will always be equal because of KVL. The voltage of R2 and R3 will be lower since R1 will have a greater voltage (Ohm's law). Vs is an independent power source so this must be true. The power associated with R2 and R3 will decrease since the voltage and effective resistance with R3 will be lower.

**

The power of the circuit will increase since we are decreasing the r2 value which will yield a higher value P in the formula $P=(Vs/(1/(1/R2+1/R3)+R1))Vs$. The reason I will get a higher p value is when we decrease the resistance, in the formula above, it causes the V in the numerator to be higher resulting in an increase in P. I got the formula by merging V=IR and P=IV together.

**

As the resistance of R2 decreases, the total resistance of the circuit decreases. For Vs, this means it sets up the same voltage difference with less total resistance, this allows more current to flow so more current + same voltage = more power. Because there is more current flowing, the power through R1 increases as if it's wired in series with the battery. Although the power increased through Vs and R1, R3 dissipates less power because a greater percentage of current flows through R2 due to the resistors being wired in parallel

**

To start, if the resistance of R2 decreases, the voltage source will remain unchanged, still giving out a constant voltage. Since R1 comes before R2 (decreasing) and R3, R1 will remain unchanged. For R2 and R3, when they have equal resistance, power runs through them equally, but when R2 decreases its resistence, compared to R3, R2 will have more power going through it, because R2 would be the path of least resistance. R3 will still have some power going through it just not as much compared to R2. This is allowed to happen because R2 and R3 are in parrallel and the Vs, and the Vs and R1 are in series.

**

As R2 goes down, an increase of current will go through R2 rather than R3, therefore increasing the power (P=VI) dissipated by R2. Because of this change, less current will flow through R3, and therefore power dissipated through R3 will decrease (P=VI). Changing R2 has no impact on Vs nor R1. By KCL the current leaving node B (the node connecting Vs, R2, and R3) must equal the current entering node A (the node connecting the three resistors). Because of this the current through Vs and R1 is the same, their potential difference remains constant, and therefore Power is the same for Vs and R1.

**

The equation for power is P=IV. For Vs, the current is determined by the equivalent resistance of the circuit. As R2 decreases, Req will decrease and therefore increase current(I=V/R). So, as R2 increases, the power associated with Vs increases. Current will also increase for R1 causing the power associated with R1 to increase. As R2 decreases, the current will flow more down its path than the path of R3. The increase in current of R2 is countered by the decrease in resistance, so Voltage of R2 may not change much. The decrease in current flow to R3 causes a decrease in power associated with R3. The power associated with R2 may increase due to the increase in current, but could decrease due to the decrease in voltage. As R2 gets close to 0, it will dissipated almost no power.

**

The power associated with the components in this circuit are related to each other through P=IV. The V in the equation should stay the same if we are taking the reading before and after Vs. The I in the equation changes if R2's resistance is decreasing. R2 and R3 are wired in parallel and if combined, R23 is in series with R1. The total resistance of the circuit depends on R2. Using the total resistance we can use it to calculate current or "I" through the circuit using I=V/R. Once the current flowing through the circuit has been established we can calculate power. Also by grouping R2 and R3 I think we can assume the current should stay the same through the whole circuit.

**

Decreasing the resistance of R2, and keeping all variables constant, will cause the current to increase, as per Ohm's Law. If the current increases, that will cause the power to increase as well, as P=IV. More power must be supplied through Vs, and more must be dissipated through R1-3, in order to account for the increase in current. It should also be noted that since R2 and R3 are in parallel, the current will be divided (likely unequally) between them. Given that R2's resistance has decreased, it will now take on a relatively higher amount of current, and therefore, dissipate a relatively higher amount of power, compared to initial conditions.

**

The power associated with Vs & R, is only dependent on the total resistance of the circuit; so, as R2 decreases, R23 also decreases because one of the possible paths becomes "easier" - less resistance. This decreases RT of the circuit & since Vs is fixed, ITotal must increase, leading to more power being dissapated/supplied by R1 & Vs. As for the power dissapated by R3, it should decrease.

As R2 -> 0 Ohms, R3 will simply be bipassed & receive no current, so as R2 -> 0 Ohms, P_R3 -> 0W. As long as (d/dR2)(Itotal(R2/(R2+R3))) is negative – meaning that current increases slow enough that the ratio of current going through the branch w/ R3 keeps current through that branch decreasing.

**

The power associated with Vs, R1, R2, R3 as R2 decreases:

Power associated with R1 decreases as the value of R2 decreases. Because there is not as much resistance against the current, and Ohm's Law states that voltage is directly proportional to resistance, as the resistance decreases,voltage through it decreases as well. If the voltage decreases, power which is directly proportional to voltage ends up decreasing as well.

Power associated with R3 remains the same. The voltage across R3 is the same as the voltage across r2 as they are both in parallel. Therefore, the only thing that is relative is the resistance, which remains unchanged, as well as the current which is not dependent on voltage.

Power associated with voltage source Vs decreases as the circuit acts like a loop. After R2 decreases, the power going back to the circuit is decreased since there isn't as much resistance.

Power associated with R1 remains unchanged because the resistance change in R2 occurs after R1 resistor. Initially, R1 remains the same but after it goes through the loop, the power in R1 decreases because the power in the voltage source decreases.

**

The power associated with Vs would increase as the resistance in R2 decreases because the equivalent resistance of the circuit is decreasing as R2 decreases and a decrease in Req would result in a increase in current because voltage is constant and current is directly related to voltage and resistance. This would make power larger because power is the product of voltage and current. The power associated with R1 would increase because as stated prior the current in the circuit is increasing this gives more power dissipated by R1. The power associated with R2 would also increase because as resistance decreases more current will flow through than it did originally and even though R2's resistance is decreasing power is more dependent on current. The power associated with R3 would decrease this is because it's current would be decreasing as R2 decreases and power is directly related to current. Furthermore the voltage would also be less, also decreasing power.

**

If the resistance assosiated with R2 drops then the overall resistance in the circuit will decrease. The drop in resistance will cause a increase in the current through the system. V=Ri Vs stays the same R decreases i must increase to keep the same voltage drop though the system. with an increased current through the system the power associated with each element would go up.

**

As R2 decreases, the power associated with R2 will stay the same (KCL), Vs's power will also remain the same (in an ideal scenario) but what changes here is the power associated with R2 and R3. Depending on R2 and R3 relativity, as R2 decreases in resistance it will increase in current and because P=I^2R, it's possible that R2 increases in power while R3 will get less current, less power. This happens because current travels through the path of least resistance. So, in summary:

Vs: unchanged power

R1: unchanged power

R2: increased power

R3: decreased power

**

The power, which comes from the voltage source is passing through 3 different resistors. The power decreases as it passes through the resistors. As the resistance is dropped in the 2nd resistor this would not affect the resistance of the other resistors. I do not think this would affect the power of the voltage source or other resistors, assuming the current is flowing clockwise. If the power is decreasing at any point it is due to a voltage drop, not the current. Resistance would mainly affect the flow of voltage not current.

**

When the resistance of R2 decreases the power across the components Vs, R1, and R3 decrease. P=I^2R so when R decreases so does Power. Since there has to be the same power dissipating and supplying we can assume the other components power decreases to balance the circuit.

**

If R2's resistance decreases, all other components' power will increase. We can model all resistors as an equivalent resistor using the equation

Req=R1+(R2R3)/(R2+R3)

From which we see that if R2 is lowered, the total resistance is also lowered. This means that the current of the circuit will increase, and because the voltage does not change, all components will have a higher wattage as a result.

**

The power from Vs will not be affected as R2's resistance decreases. R2 will also be unaffected by the decrease. However the total resistance of R2 and R3 will increase as R2 decreases. This is due to them being in parallel with each other. The current and power across R2 and r3 will both increase as a result.

I believe the voltage across R2 and R3 will still be the same. Even as R2's resistance decreases.

**

If the resistance of R2 is decreased then the power associated with R3 will decrease because there is less resistance in R2 so more current will flow through R2 than initially. The power associated with R2 will increase as the resistance of R2 decreases because more current is now flowing through R2 and P=i^2R. The power associated with R1 and Vs will both decrease because the equivalent resistance in the circuit will increase when R2 decreases meaning that there will be less current flowing in R1 and Vs. So less current means less power P=IV or P=I^2R.

**

So, there are a couple things we can assume for this circuit. First, since resistors always follow the passive convention, and thus dissipate energy, we may assume that the voltage is supplying energy. Because of this, we may also assume the current across Vs goes from low to high potential (since the Vs supplies energy). When R2's resistance decreases, we may infer that the voltage across R2 will increase. This is because of the relationship between V, I, and R in Ohm's Law (V=IR). The reason the current doesn't drop instead is because of KCL, more specifically KCL at node N1 (the node connecting all three resistors). Since the current entering the node needs to equal the current exiting the node, and that I won't change (R1 remains unchanged), that must mean that current exiting the node cannot change either.

**

As the resistance of R2 decreases, the power dissipated by R2 increases (P=IV: bigger I = bigger P). The power associated with R1 will increase since Req of the parallel resistors decreases, therefore R1 has a bigger voltage drop and flows more current. The power dissipated by R3 will remain constant since the voltage slightly decreases and the increased source current is flowing through R2.

**

The power associated with the components of this circuit will increase as the resistance of R2 decreases, as Power is directly correlated to current and voltage. In order to maintain the same voltage, current must increase to compensate for the lower resistance, which means that power will increase as well, given p-IV.

**

Vs will supply power to R1 and R3. Current is traveling through the battery from higher to lower potential (by convention). The circuit will be consistent with power.

**

As the resistance of R2 decreases the power associated with R2 is going to increase because the voltage drop is directly dependant on the current and resistor. Since the current would remain the same the only other component would be the resistor. The power is directly related to the voltage and current. The power going to R3 would decrease because it is easier for the current and voltage to go through R2 with less resistance. R1 would remain the same along with Vs, because no component of their power, voltage or current, is being affected.

**

If the voltage and resistance in R1 and R3 remain constant the power will decrease as the resistance of R2 decreases below R3 because KCL states the resistance of R1 + either R2 or R3 (whichever is lower) equals the total resistance of the circuit. Since the voltage is constant the current will follow the path of least resistance. When the resistance of R2 goes below R3 the power will drop because P=I^2(R1+R2). The power when R3 is higher will be higher than when the resistance in R3 is higher.

**

Ohm's law states V=IR. In the case of R2 decreasing and Vs, R1 and R3 remaining constant, V_R2=I2R2 and V_R3=I3R3. V_R2=V_R3 because these elements are in parallel, so as R2 decreases I2 must increase. Since I2 increases and V_R2 remains constant, the power dissipated across R2 must increase since P=VI. The power dissipated across R3 will be less because I3 will decrease. The power across R1 will remain constant because Is and Vs remain constant across it and power across Vs will also remain constant for the same reasoning.

**

The question is ask me what happens to the power if I decrease amount of resistance in R2. We use this equation: Power=IV. So we want to see different between higher R2 vs lower R2. So we begin find current of this circuit as we use Ohm's Law (V=IR). We start with sum all resistance into -> Req as we see R2 & R3 are in parallel so we sum like this R23=(1/R2+1/R3)^-1. Next step we want to sum R1 & R23 because they are in series circuit now -> Req=R123=R1+R23=(1/R2+1/R3)^-1+R1. Now we found Req so we can find current by using Ohm's Law V=IR -> I=V/R=Vs/Req=I. So now you can solve power in Vs then you'll find voltage in R1 then Vs-V1=V2=V3. Use those to find current in R2 & R3. So you can solve other power in R1, R2, R3. So now the different in R2 as we can see if we decrease R2. It will change value of R23+Req (1/R2+1/R3)^-1=(R3R2)/(R2+R3)

**

R2 and R3 are in parallel with each other and current wants to take the easiest path, so more current would flow through R2. At the same time, I assume less current would flow through R2. At the same time, I assume less current would flow through R3. Since the equivalent resistance is equal to R1 + R23eq where R23eq = 1/(1/R2 + 1/R3), I think the total resistance in the circuit would decrease, driving the total current higher. So power provided by Vs might be greater, power from R1 should be greater, power from R2 might be the same (higher current, less resistance), and power to R3 might decrease.

**

As the resistance of R2 decreases the current would also have to increase to keep the same voltage. The total resistance in the loops would go down. The current leaving the node of R2 and R3 would change as well. The voltage drops in each loop would change (it would increase). Since there is less resistance then more voltage will carry through since current travels more. This would overall change the power of the circuit. Since current and voltage in each loop would change. When R2 resistance goes down the voltage source will still produce the same initial voltage for the circuit.

**

As the value of R2 decreases, this means the total power across R2 will decrease (P=I^2R), the smaller R, the smaller total power(P). Meaning, in all other circuit elements, power will increase, to adjust for the loss in power in R2. So power in Vs will not change, due to constant voltage, P=IV. However, the power across R1 and R3 will change. Since the resistors R2 and R3 can be combined to simplify finding the current, R23 as a whole will decrease. This leaves one current to flow through the simplified circuit. The power across R1 will remain unchanged. After finding the voltage across R23, using the simplified circuit, you can seperate the resistors out into 2 equations, where R2 decreases, current across R2 also decreases. Where in R3, the current will then increase, due to the conservation of energy law. Because the value of R3 does not change, the voltage across R3 is what changes, leaving the power equation, P=IV, to also increase with respect to voltage increase.

**

I would say based on two factors I see. One, R2 and R3 are paraellel which means there resistance is as shows R23=1/(1/R2+1/R3). Two, the same current goes thru them and leaves them. I would say the more R2 resistance decreases the more charge and current goes thru R2 route rather than R3 and when R2 resistivity is zero, very few to no charge would move thru R3 because charge goes thru the path of least resistance causing the paraellel part of the cuircuit to act as a wire. This may be classified as a short circuit.

**

As the resistance of R2 decreases the current through the circuit increases because of Ohm's Law: I=V/R. Power is equal to the current multiplied by the voltage: P=IV. So if current increases and voltage stays the same the power in the circuit should increase.

**

The power of Vs would decrease while the resistance of R2 decreases. This would happen due to power equalling current squared times resistance (P=I^2R). Current would be constant so as R2 decreases the power decreases. R2 decreasing only effects R2's and Vs's power so R1's and R3's power stays the same. The net power must equal zero so, 0=-P_Vs+P1+P2+P3 => P_Vs=P1+P2+P3, and as P2 decreases so does P_Vs.

**

What would happen if R2 decreased is components R1 and R3 would continue to resist and disipate a higher current of voltage because when it gets back to the voltage source (Vs) it will still have to contain the same voltage drop inside of it so because of this we know R1 and R3 would have to hold more power because Vs is not change, and it is now known R2 can't handle as much as the argued power it due to its decreased resistance.

**

R2 R3 are in parallel. R1, R2, R3 all disippating power. Vs is power source. To get power that have to calculate I float through the circuit. After find I then could calculate voltage pass through R1, R2, R3 and how much power resisters dispite power. R2 decreases V=IR I=V/R. As R2 decrease current will be increase from Ohm's law, Vs doesn't change. Current will be the same pass through R2, R3. Voltage will be no less through R2 V=IR.

**

As R2 begins to decrease, the total power supplied by the voltage source must increase. R2 decreasing leads to the total resistance of the circuit decreasing. Since a voltage source has constant voltage and V = IR, when resistance decreases, current must increase. Power is given by W = VI, so an increasing current with an unchanging voltage leads to increasing power. R2 and R3 are in parallel, with R1 in series with the parallel 'block.' Since being in series preserves current, the new higher current is flowing through R1. Once again, since V = IR, the voltage drop across R1 must also increase in order to support the increasing current. This brings us to R2 and R3. Since they are in series, they preserve voltage between the two resistors. Because of R1's increased voltage drop, the voltage remaining due to the fixed voltage source is less than the original voltage drop. Since R3's resistance is not changing and V = IR, this must mean that it is receiving less current than before. With less current and less of a voltage drop, it must be receiving less power. R2's resistance is decreasing; as it decreases, it also receives a greater share of the current flow between R2 and R3, and it receives a lesser and lesser voltage drop. With all that in mind, it makes sense to look at the end point of a decreasing resistor. Eventually, the resistance of R2 is trending towards 0. When it is zero, it will have no voltage drop associated with it, and thus no power. This must mean that overall, its power is decreasing.

**

By decreasing the resistance value of R2, you are effectively decreasing the equivalent resistance of the circuit which increases the current through, and power dissipated by each resistor.

**

Because The R2 and R3 resistors are in parallel, this means that the resistance of the two parallel branches will have a equivalent resistance that is lower than the weakest resistor in the two branches. So as R3 decreases, the current throughout the complete circuit will increase based off ohms law thus increasing power in the circuit elements.

**

Resistance and volatage are independed variable compared to current which is a depended variable
Power is computed by using ohms law P = I*V. It can be re-written as P=V^2 / R(eq). Since we are evaluating power based on the voltage source and resistors. Changes in one resistor does not change the values of the other resistors or the value of the voltage source. It does change the total resistance in the circuit. Since R2 and R3 are in paralell the current is split between the two at the node. A decrease in R2 will result in an increase in the current supplying that line of the node and current to R3 will decrease to accom. Power at R3 will

**

As R2 decreases, the resistance of the circuit decreases. This allows more current to flow. The current in elements that remain in a series configuration (Vs and R1) will increase, as a result, they will experience more power (P=IV). R2 and R3 will share the same voltage drop; however, the current in the R2 leg will increase as R2's resistance decreases. R3 will not experience a change in current or voltage.

**

First, I looked at the power supplied by the power source. As the resistance of R2 decreases, the total resistance of the circuit decreases and therefore the current coming from the battery increases. Given that the voltage from the voltage source is constant, according to the equation

P=IV, the power from the voltage source will increase. Due to the equation V=IR and decreased total resistance, the voltage and power for R1 will increase resulting in a higher power associated. For R2, I chose to use the P=I^2 R equation. The current across R2 will be increasing while the resistance is decreasing, but because the resistance is squared, I believe the power associated with it will increase. Finally, because the resistance of R2 is decreasing, I expect that R3 will experience less current and therefore a proportionally lower voltage, and will therefore have a decreased associated power. Finally, I do a quick sanity check on my answers. I notice that the power from the voltage source increases and the power associated with two components increase while only one decreases, so the power supplied and the power dissipated both likely increase, which provides a small amount of verification to my answers.

**

As the resistance of R2 decreases the equivalent resistance of R23 will increase since it is a parallel circuit, which will lower the current draw from the V source lowering the Power of the V source and R1 and increase the voltage drop across R23. A higher voltage across R23 means a higher current across R3 which with the same resistance means a higher current. With the both higher current and voltage the Power across R3 will greatly increase. For R2 because of the higher voltage and lower resistance there will be a higher current which means a higher power from R2

**

The first thing I looked at with this figure was the power source. I noticed the dir3ection in which it was facing and that it is not explicitly labeled the strength of the source. The power travels clockwise and when it hits the first resistor, the current reduces by a little. As the power moves on it reaches resistors two and three art the same time, as they are wired in series. the current again reduces by a little and the circuit is complete. This explanation gives me a basis to move foreword with the question. If the resistance of R2 decreases then that means the power associated with the entire figure changes. I'm not entirely confident what happens, but I want to say that because R2 has a smaller resistance, more power flows through it, and less power flows through R3 as they are wired in series. If the power source does not change then that means the power and current flowing through both the power source remain the same.

**

As the value of R2 decreases, the overall power of the circuit decreases as well, as R2 and R3 are in parallel with each other, meaning that the combined equivalent resistance of the both of them can not be greater than the lowest value resistor between them. Therefore, regardless of the value of R3 and the fact that it remains unchanged, the overall resistance of the parallel branch of the circuit reduces along with R2, ultimately reducing the overall resistance of the entire circuit.

**

VS,R1,R3 will stay constant throughout the circuit.
R2 will be decreasing over time, which can be seen as function R2(t).
We are trying to find the Power of the circuit.

Power = I V by def.

Ohm's law is V = I R rewritten as I = V/R or R = V/I.

Once the voltage passes through all electronic parts, potential will be 0.

Current is constant until it arrives at a node and splits into branches,
when the branches come back together it will result in the original current.

The power through Vs will stay the same because current going out of Vs and coming into Vs must be the same and Vs is the only supply of voltage.

The power through R1 will stay the same because resistance, voltage, and current will stay the same.

By decreasing resistance of R2, either voltage or current will be affected. Our source of energy is a constant voltage source. The voltage will split evenly between the two paths at the node resulting in an increase in current to compensate for the decrease in resistance. Our power equation P = V^2/R tells us that power will therefore increase. The change in current will then effect variables in R3.

The power through R3 will have to decrease, because of the increase in current and constant R3.

**

As the resistance of R2 beings to drop, the power being drawn from the power supply will being to rise as the total resistance of the circuit begins to drop. Similarly, due to the decrease of total resistance through the parallel resistor network the power being dissipated by R1 will increase as the current continues to increase. At the node where the two parallel resistors meet, more power dissipation will occur in R2 rather than R3 as current will take the path of least resistance. As the resistance continues to drop, this wll continue.

**

When the resistance of R2 decreases, the resistance for R2,3 increases because resistors in parallel equal 1/r1+1/r2+... and dividing by a smaller number will yield a larger number. Resistors in series will add to R1+R2+..., this means the total resistance in the circuit is again increasing. P=IV shows that power, either supplied or dissipated, depends on both current and voltage. Due to the fact that the total resistance increases every time R2 decreases, I=V/R tells us that if the resistance increases, the current in the circuit decreases and thus power dissipation increases as well. Vs is supplying power, but as resistance increases, that amount of power is decreased. The power associated with R1, R2, and R3 depend on the voltage drops across them. Their voltages will decrease because the current is decreased and their power will decrease as well.

**

Because power equals voltage times current, the power of Vs will be dependent on the overall current of the circuit. Because R2 and R3 are in parallel, the equivalent resistance of these two resistors will decrease as the resistance of R2 decreases. Because current follows the path of least resistance, once R2 has a lower resistance than R3, the current to R2 will increase, thus increasing its power. The opposite is true for R3, having a decreased power. The power of R1 will remain the same, for the current running through R1 is not changing. Finally, the power of Vs will decrease, for the current draw through the circuit will decrease.

**

Vs and R1 will not change. When R2 decreases, the amount of power goes down. Since R2 and R3 are in parallel. The power associated with R3 will also decrease.

**

as R2 decreases, and is in parallel with R3 which R2 and R3 are in series with R1. the equation for total resistance comes out to be R-total = R1 + ((1/R2) + (1/R3))^(-1). If the value R2 decreases this will increase the total resistance. Due to ohms law V=IR, an increase in resistance will increase Vs.

**

As the resistance of R2 decreases, the current through the entire circuit will decrease, as will the total power of the circuit as a result of the lower current.

The current through all of these components will decrease as the decreased resistance of R2 will lighten the load on the circuit, lowering the amount of current drawn from the voltage source Vs. Because of this lower current, the power associated with each component will also be lower, given that power is the product of voltage and current.

**

Knowing ohms law and the power formula "V=IR" and "P=IV" I can analyze the circuit. I know due to ohms law that if Vs stays the same but resistance goes down that must mean current goes up across the entire circuit. Then if the current goes up and the voltage stays the same that also forces the power to go up for the elements in the circuit as well.

**

As R2 decreases that will cause the total resistance of the parallel portion of the resistance of the circuit to fall. This is because, in a parallel circuit, the resistance equivalent can never be higher than the lowest resistance. so this will cause the Req or the total resistance to drop rapidly even when R1 and R3 are unchanged. Moving onto the power associated with each of the other components, we know that R3's power will decrease as R2 decreases, as well as we know R1 will remain the same even as R2 lowers. So if only one of the resistors changes its power then we know that most likely to balance of the supplying and dissipating power the voltage sources power will also have to drop to a lower amount.

**

As the resistance of R2 decreases the total resistance of the R2||R3 parallel combination will go down, making the equivalent resistance of the entire circuit to go down. The voltage drop across Vs will remain the same so, as the equivalent resistance of the circuit goes down, the current through the circuit will rise. As the current through R1 rises so will the voltage drop across R1, this is offset by the voltage drop across R2||R3 decreasing due to the resistance decreasing. the current through R2 and R3 will go up, but not as quickly as the current rises in R1 due too the current dividing between the branches. This means that the power associated with R1 and Vs will increase as current rises and the power associated with R2 and R3 will decreases as the voltage drop across them wanes.

**

As R2 decreases, the power associated with the circuit increases. This happens because R2 is in parallel with R3, and the equation to determine equivalent resistance is (1/r1 + 1/r2 +...+ 1/rn = req). If you do a simple check in your head, it can be found that Req decreases as the resistance in either of the elements decreases (5 Ω and 15 Ω: 1/5 + 1/15 = 4/15. Req = 15/4 Ω = 3.75 Ω. 5 Ω and 6 Ω: 1/5 + 1/6 = 11/30. Req = 30/11 = 2.7ish Ω). The equation for determining power based off of resistance and voltage in a circuit is P = v^2/r, so if voltage remains constant and Req lowers, it will increase power since we are dividing by Req. Current increases since V=IR. Another equation for power can be used to find the power associated with R1, R2, and R3: P = I^2(R). Since current increases and resistance of R1 remains the same, its power increases.

For the other two, I'm not really sure but my intuition is telling me (probably incorrectly) that dropping the resistance on R2 attracts more current than before, which makes up for its drop in resistance with the P=i^2(R) equation, so it stays the same. R3's power also stays the same since it now is receiving less current due to R2 being an easier path to take for current but since there is more current it balances out. R3 is forced to increase its power usage since the current traveling through it is all the current in the circuit, which is more than before. Well, either way I'm kind of lost. =(

**

W=V*I. As the resistance of R2 decreases, the total power of the system increases. This is because if the voltage of R2 stays the same but the resistance decreases, due to V=I*R the current through R2 must increase. This increase in current means the power associated with Vs and R1 both increase. The only component which will decrease in power would be R3, due to the current preferring the other route more while the voltage stays the same.

**

As the resistance of R_2 decrease the following will occur, (1) the equivalent resistance of R_2,3eq (R_2 and R_3) will decrease, (2) the current through R_1 increase, and (3) the current through R_2 and R_3 will increase. (2) is a consequence of (1) as R_2,3eq decreases the total equivalent resistance will decrease and by ohms law the current will increase. As a consequence of (2) the power of R_1 will increase. Consider the upper node that splits R_2 and R_3. As discussed above the current into that node will increase. by KCL the current out must also increase. This additional current will split between R_2 and R_3 based on the proportion of their resistances, but both currents increase causing both powers to increase. Because power is a conserved quantity, the power supplied by V_s must increase in tandem with the resistor's power increase.

**

As resistor 2 decreases, the overall resistance of the circuit would decrease as well. Power is equal to amperage multiplied by the voltage, so when the resistance goes down the amperage would go up causing an increase in power in all other components.

**

When I look at this circuit with regards to R2 decreasing in resistance I see that there will be less total resistance in the circuit. In this case I like to simplify the parallel resistors into an equivalent resistance. When R2 is decreased the equivalent resistance of the parallel element is similarly decreased. With less resistance in the parallel element the current through both R1 and Vs are increased. Vs will have the same voltage difference and a greater current leading to greater power supplied. R1 will have both higher voltage drop due to increased current, and a higher current value due to resistance changes in R2 so the power will increase there as well. The element R3 will experience less current since it is in parallel with R2 and will have a relatively higher resistance than R2 when compared to before the change. Regarding R2 I am not 100% sure. I see that the resistance changes leading to more current through the element but in turn less of a voltage drop, if I had to make a guess I would say that it dissipates the same amount of power as beforehand.

**

As Resistance in R2 decreases, either the resistance for R3 must increase(thus increasing the power) or the voltage of Vs must decrease to keep the power at a steady state. If R3 and Vs are unchanged then the power of the circuit will decrease. Going to the relation equation of power P=IV and combining it with Ohms Law V=IR we see that power related to only resistors is P=I^2R. So following this equation, as R degreases so does P because they are directly related and I must stay constant.

**

When the resistance of R2 is reduced power values associated with R2, R3 will change due to the nature of the Power equation P=VI, or P=(I^2)(r). We know that the elements R1 and Vs would not experience a power change because the current run through those elements would be un affected by the change in the set of parallel resistors. We know that because of KCL that the current entering node A (the split between R2 & R3 directly after R1) must be the same as the current leaving node B (the converging point of the parallel resistors located at the bottom of the diagram). We also know that resistors R2 and R3 will have a constant voltage across each of them as is the nature of parallel resistors. Knowing this with Ohm's law being V=IR then as the resistance of R2 goes down the I value of R2 goes up increasing the power through element R2. Simultaneously this reduces the current traveling through R3 leading to a decrease in power across R3.

**

In the circuit, I notice R2 is connected in parallel with R3. That loop is connected in series with R1 and Vs. Since R2 and R3 are connected in parallel, they will have the same potential difference across them. However, if R2 decreases in resistance, more current will flow over this path than the R3 path. Since Power is equal to current times voltage, this means R2 will have an increase in power and R3 will decrease in power. Components connected in series will have the same amount of current across them since Iin has to equal Iout so the current in R1 won't change. However, as R2 decreases in current, the effective resistance of that path also decreases. This means the current increases along both components leading to a higher power output for R1 as well. The power across Vs will stay the same as it is an ideal voltage source with constant current flowing through it.

**

the dissipating rate would be lower for r1+ r2 would be less so total resistance would be less but for 1/r2+ 1/r3 total resistance should be greater thus making the dissipating rate higher

**

The power for the entire circuit will increase, as the equivalent resistance as "seen" by Vs will decrease causing an increase of current to match the constant voltage while the resistance drops.

**

We know that V = IR, or that R = V/I, and P = IV, so when R decreases, the ratio of V to I decreases. This means that either the current through the resistor must increase or the voltage drop across the resistor will decrease, or both. In an ideal wire, there is no voltage drop, meaning that it must be the voltage drop across the resistor that must be decreasing in this case.

Given that, then we know the power of R2 must be decreasing, as Power = Current times Voltage. Seeing as R1 comes before R2 in the circuit, the first resistor should experience no change in regards to the modification of R2, and R3 would consume less power as more current would flow through the now decreased resistance of R2 (assuming R2 and R3 are initially of equal value). Even if R2 and R3 are not initially equal, a decrease in resistance would still cause an increase in current in R2 and a decrease in R3.

Essentially, the load of the circuit is being decreased, meaning there should be no power consumption increases as the circuit approaches being essentially a loop of wire.

**

As the resistance of R2 decreases, the amount of current going through R3 will also decrease, therefore, the power going through R3 will approach 0. The voltage drop across R1 would approach Vs which would make more power dissipated across R1. The power supplied by Vs would stay the same and become equal to the power dissipated by R1.

V=IR
P=IV
P=I^2 R

**

Decreasing R2 will decrease the potential voltage difference and then decrease the power associated with the elements in the circuit providing power. Vs power would decrease and R1 and R3 would remain the same. The power in R2 would also decrease.

**

As the resistance of R2 decreases then the current will increase in the section of wire that R2 is connected to. That means current will decrease in the section that R3 is on since they are in parallel. R1 is in series with the entire circuit, so the current going through R1 will also increase. Note that the increase in current at R2 is larger than the increase in current at R1 since R1 gets the overall current and R3 has reduced current. there is also a resistor formula where 1/R2 + 1/R3 = 1/R in that component. as R2 decreases then the total resistance also decreases in that component. V2 also experiences all the current in the whole circuit just like R1. Since the current is increasing in Vs and the voltage stays the same, then the power will increase. R1 is in series with the component containing R2 and R3, since the component decreases in resistance it absorbs less voltage meaning R1 will increase in absorbed voltage and power. The resistance doesn't change with R3 but the current decreases so the power will decrease in R3. AS the resistance in R2 decreases, the current will increase, but since resistance and current are necessary to determine voltage and power I can not determine if R2 will increase or decrease in power consumption. It has to depend on the resistance and source numbers

**

I'm thinking about the fact that R2 is in parallel with R3 so the total resistance of the circuit will increase when R2 is decreased in resistance. Thus I think that less power will be dissipated by R3 because more current wants to move down the R2 path than before thus power will increase on R2 and decrease for R3 because I'm thinking about ohms law and how the current is related to resistance. this is because voltage across these branches should stay the same because those branches are in parallel.

After this I think that the power supplied by Vs and R1 should stay the same because nothing has changed in the path of the circuit that would affect there power. Decreasing R2 only affected R3 and itself because they are in parallel with one another.

**

As the resistance of r2 goes down the resistance of the entire circuit goes down, due to the voltage across VS remaining the same the current in the circuit must increase. Therefor the power out of VS will increase, the power absorbed by r1 will increase, the power absorbed by r2 will increase greatly, and the power absorbed by r3 will increase slightly.

**

In the circuit shown, there is a voltage source connected to three resistors R1, R2, and R3. In the event that the resistance of R2 is decreased and the rest of the elements stay the same, the behavior of the circuit would change. If the initial resistance of R2 and R3 were the same and R2 were decreased, more current would begin to flow through R2 as the resistance was lowered. This would also mean that less current would flow through R3 as the current takes the path of least resistance. The power in the circuit will be affected by this change. Since R2 is decreasing in resistance, Ohm's law states that the voltage across the element will also change (V=IR). Knowing this, we can also say that the power in the circuit will be reduced as the equation for power relates current and voltage(P=IV). Since the voltage is dropping by Ohm's law, the power will also be reduced as the two equations are related. The current does increase or decrease through the circuit but rather more of it flows through R2. The power of the voltage source will not change, the power of R1 will not change, but the power of R2 will increase while the power of R3 will decrease.

**

When the resistance in R2 decreases, the power associated with R1 stays the same because there is nothing before R1 in the circuit to change the current or voltage that reaches it. When the current reaches resistors two and three, the effective resistance is lower than what it was in the original case. This causes the current to increase, but the power only increases in R3, R2 does not increase in power because there is a smaller voltage drop across it. The power in VS also increases because the current increases with the same voltage, leading to an increase in power.

**

Since the first resistor is wired in series with the Vs supply, the power across it will not change. The same is true for the power supply as well since it is at a constant voltage and current is conserved. The two resistors wired in parallel will have a change in power consumption as R2 decreases. Since the current will stay the same, the power will decrease over R2 as the resistance decreases from V=IR. The inverse is true for R3 since it is wired in parallel(i.e. as one goes down the other goes up).

**

As the resistance of R2 decreases, the current in R2 increases, due to the relationship of V=IR. Since the voltage will remain the same, the power associated with R2 increases. Decreasing the resistance of R2 will decrease the resistance of the parallel circuit R12, which means that, through the equation explained previously, the total current through the circuit will increase. This conclusion is allowed because R1 does not affect the current. Therefore, because the current through the whole circuit increases, the power associated with R1 and Vs both increase. However, because more of the total current is running the R2 than it was previously, the power associated with R3 decreases.

**

The total Resistance of the circuit is decreasing so the total Current is increasing. R1 is not on a split path so it's power must increase. R2 is the resistance that decreased so the extra current goes through it and therefore it's power increases. R3 is on the other split from R2 so it shouldn't get more current and therefore it's power is staying the same.

**

As the resistance of R2 decreases, the total resistance of the circuit also decreases. This would result in a higher current due to Vs remaining constant, which means that the power associated with Vs and R1 would increase. However, the power associated with R3 would decrease due to R2 having less resistance. This means that less of the current would flow through R3, thus decreasing its associated power. It's tricky to say how R2's power would change without numbers. While a higher current would be flowing, the lower value of resistance would create a smaller potential drop across it. Both of these factors would affect its associated power. Because P=I^2R, the increase in current would be more substantial than the decrease in resistance, so R2 would most likely use more power.

**

As R2 decreases in resistance, the other component values remain the same. We view that current within the system is moving in a clockwise direction starting at the source of Vs. As R2 decreases in resistance, that means that less current is needed to completely power the circuit.

So Vs would decrease in power. Since current is flowing from Vs in the clockwise direction, the element of R1 would remain consistent to what it was before. R1 will still require the same amount of power as before. Moving past R1 we notice that R2 and R3 are in parallel with each other. Since R2's resistance is decreasing, it can now take on less power which means that it is decreasing. Since R2 and R3 are in parallel with each other and R2 is taking on less power, that means that R3 would be required to take on more power to make up for the decreased resistance in R2.

**

As the resistance decreases this lowers the overall resistance of the circuit. Using the equation P=I^2*R we can see that the power would be smaller for Vs and R1. As the resistance is smaller across R2 that would increase the amount of charge flowing through it, but it would still decrease the overall power because I is squared and R is not. R3 loses power simply because the some of the previous current value flowing through it has been directed to R2 which has a smaller resistance

**

As the resistance of R2 decreases, the power associated with Vs, R1, and R2 will increase while the power associated with R3 will decrease. This is because as the resistance of R2 decreases, the total resistance of the circuit will decrease, in this case because electricity with just skip the path where R3 resides. Moreover, the power associated with Vs will increase shown by the equations V=IR(Voltage cannot change so I must to compensate for the loss in R) and VI = P. Furthermore, the power associated with R3 must decrease as R2 decreases because less amperage will be going to it. Following that, R2's amperage will increase hence increasing the power associated. The power associated with R1 will also increase because of the increase in I across the whole circuit.

**

As the resistance of the R2 resistor element in this circuit decreases there are a few changes to the power associated with the other elements of the circuit. The R2 element decreasing in resistance means that the because of ohms law (I=V/R) the current in the circuit will decrease meaning that the power will also decrease across that element (P=I*V). But because there is only one voltage source the and the current draw is now less across that one element the power must decrease for the voltage source and remain the same for the other elements.

**

I believe that as the resistance of R2 decreases, the overall resistance in the circuit will increase. As the total power supplied and dissipated must be equal, when the resistance of R2 goes down, so does its power usage, therefore the dissipation of power across the other two resistors must increase. the power across Vs should remain the same, the power across R1 and R3 will increase and the power across R2 will decrease.

**

If R2 decreases the total resistance value of the circuit will decrease. This will cause an increase in the current in order to meet the ideal voltage source. The amount of current that increases will then be routed through R2 due to the lesser resistance. If the current increases and the voltage stays the same the overall power of the circuit will increase due to P=IV.

**

Because R2 and R3 are in parallel, the current through them differs. However, the voltages across R2 and R3 are equivalent. Because R1 and Vs remain constant, the power of R1 will remain constant. The current through R1 will also remain constant. As the resistance R2 decreases, the current through the resistor will need to increase to maintain the same voltage. Therefore, at the node where the R1 branch splits into R2 and R3 branches, more current will be taken down the R2 branch. Thus, less current will pass through R3. With regards to power, R2 will absorb more power since current increased and voltage remained constant. R3 will absorb less power because current decreased while voltage remained constant. The power output of Vs will also remain the same because the current passing through it and its voltage will remain the same.

**

R2 is in parallel configuration with R3 and in series configuration with R1. If the resistance of R2 decreases, Vs power supplying will be reduced because the resistor is consuming less energy/power. R3 and R1 will continue to consume the same amount of power because their resistances/loads have not changed. R2 will be consuming less power since its resistance is less, thus drawing less current.

**

If Vs, R1, and R3 are unchanged but R2 decreases then I believe that since electricity wants to go through the path of least resistance, then more current would be going through R2. Since the resistance of R2 is decreased that means that it is resisting less current going through it then R1 or R3. Resisting less current means that it is allowing more power to flow through it.

**

Since the current should follow the passive convention, the current should be flowing in a clockwise direction going from low to high potential. The power associated with the other elements of the circuit are unaffected as the resistivity of R2 decreases because R2 is a passive element and current and voltage flow are unchanged. The only element effected will be R2, with less resistivity, the power associated with R2 will be greater.

**

The power of the voltage and r1 would go down in the circuit while r3 would stay the same since it is in parallel to the resistor that is losing resistance

**

As the resistance of R2 decreases, the total resistance would also decrease, given Rtotal=R1+((1/R2)+(1/R3)). The decrease in resistance would thus the power would result in more power (Power=(V^2)/R). In conclusion, the gradual decrease in resistance with increase power until the resister essentially becomes no different from the wire, which would cause the current to bypass R3, making R1 the only resistor providing resistance.

**

The power associated with R2 will increase because, while the resistance decreases, the voltage will remain the same. following V=IR, then, the current is increased. Using the power equation, P=IV, we find that the power over R2 will increase. The power over R1 will increase due to the overall increase increase in the current of the circuit which comes as a result of a net decrease in total resistance. Since the power over the resistors increase, it follows that the power over the voltage source will as well because the voltage source will remain at a constant potential difference and increase in current. In summary, because it is an ideal voltage source and nothing in the circuit is changing the potential difference, the current is the only thing that can be changed to balance the change in resistance. Since the current effects power more than resistance, this leads to an increase in power. The power in R3, however, will remain the same because it has both the same resistance and same potential difference, leading to the same current through it which means the power remains constant.

**

The voltage source power decreases when R2 goes down. This is because of the way total resistance is found for resistors that run in parallel. This is since the total resistance will be less than both of the resistances therefore as one resistance decreases the total resistance increases. This means current decreases since V/R=I and therefore power also decreases. All the elements power will be decreasing in relation to R2 as there will be less current.

**

The voltage source of this circuit would stay the same because it is the only component supplying power. Current would move through the the circuit clockwise, and resistor 1 does not change so the power associated with it will stay the same. From there, according to Ohm's law if resistance decreases in resistor 2, the associated voltage and current will increase, so power will increase through that component. Resistor 3 has a constant resistance, so power will remain constant.

**

As the value of R2 decreases, the overall resistance of the circuit will decrease as well. Specifically, the parallel configuration of R2 and R3 will allow a slightly larger current to pass through it, thus inducing a larger current on R1 and Vs. We can say that Vs, R1, and R3 will have larger powers associated with them. However, because we do not know the I-V characteristics of R2, we cannot say for certain that the decrease in resistance wouldn't lead to a decrease in current that would keep its power at the same level.

**

As the resistance of R2 is decreased the current will take the path through R2 more primarily rather than going down the path of R3. The power associated with R1 will increase because the equivalent resistance of the parallel section of R2 and R3 will increase overall increasing the current being produced by the Vs. The power associated with Vs will also increase due to outputting the same voltage with a higher current. The power associated with both R2 and R3 will decrease due to the equivalent resistance being lowered.

**

If R2's resistance was to decrease the power associated with R1 and R3 would increase because more current would be running through them as there is less resistance in the circuit as a whole. This would also mean that the power associated with the voltage source would increase due to P = IV.

**

Power depends on the current and voltage P=IR. By ohms law if the resistance changes and voltage stays the same then the current is changing. So if R2 is decreasing I think that the current would have to increase through that element and the parts in series with R2 R3. Therefore the power also increases. I get confused when thinking about this from the perspective of each element.

If I remember correctly, P=IR works for all elements and P=i^2/v, I think is the equation for resistors only. Since I am not positive that is correct, I should be able to use P=IV for the resistors as well to solve this. Total current should increase, so I think the current through Vs and R1 increase.

Current through R3 should decrease though since there is less resistance through R2 now. If the current there decreases, then the power should also decrease.

**

The power associated with VS, R1, R2, and R3 would increase, since the current of the whole circuit would increase if the resistance of R2 decreased. Since we're assuming the voltage source is ideal, it will provide the same voltage regardless. Therefore, the voltage differences across the resistors would not change, but the current would based on the resistance of the circuit. Lower resistance of the whole circuit means the current must increase, for the same voltage drop to occur. Since power relies on voltage and current, P=IV, there would be an increase in power.

**

As the resistance of R2 decreases the current across R2 will increase. This relationship is known for resistors from ohm's law V = IR. The voltage drop across R2 and R3 will stay the same. R3 will continue to have the same power as current and resistance do not change for R3. R1 will continue to have the same power as current and resistance do not change it. The power for Vs will increase as the greater current from R2 will cause a greater current in Vs, which in turn will create a larger power associated with Vs.

**

As the resistance value of R2 is decreased the power across it will decrease as the power is related to the resistance and current. The power across R1 will not change as nothing is changing on it and the power across R3 will Increase as it is wired in parallel with R2. The power associated with VS will not change.

**

The power coming from the Vs will decreases because the overall resistance in the circuit will decrease. The power over R1 will stay the same as the resistance is not being changed. R2 power will increase because since there is less resistance more current will flow through thus increasing power and the opposite will happen to R3.

**

As the resistance of R2 decreases, the the current across R2 would increase, as current would flow across the path of least resistance. If the current across the resistor increases, then so would the power dissipated by the resistor. Due to R2 and R3 being in parallel, the increase of current across R2 would lead to a decrease of the current across R3, decreasing the power dissipated by R3. Because R1 is in series before R2 and R3, nothing would change in regards to the power dissipated by R1. The same goes for the voltage source, as the amount of current would not change, and the voltage supplied by it would not change either. The power supplied by Vs would remain unchanged.

**

P = V^2/R. R2 and R3 are in parallel, and they are in series with R1. The power equation can be rewritten as P = V^2/(R1+(1/R2+1/R3)^-1).
Power associated with Vs and R1 go up, also for R2.
Power goes down for R3 because more charge flow will travel through R2 as its resistance decreases. P=VI. Less current means less power.

**

As the resistance of R2 decreases the power that flows through R1 will remain unchanged as it is the first point of contact after the voltage source in the circuit. R3 however will have less power flow through it as R2 lessens in resistance power will prefer the easier route to follow so more power will go through R2. VS will have no extra power going into it the amount of power it received before will stay the same throughout no matter the resistance in R2 or any of the resistors,

**

When the resistance of R2 decreases the equivalent resistance of the combined R2 and R3 resistors decreases as well. This decreases the overall resistance of the circuit, thereby increasing the current through Vs. Because the the voltage across Vs stays the same its power must increase. The power across a resistor can be calculated with the equation RI^2. Because the the current through R1 is also increasing, but its resistance stays the same, its power must also be increasing. The voltage difference across R1 must also be increasing by ohms law. Therefore the voltage across R2 and R3 must be decreasing. The power across a resistor can also be written as V^2/R. Using this we know that the power across R3 must be decreasing. The current through R3 decreases while the current through R1 increases. This means the current through R2 must increase. The current will likely be increasing more than the the voltage is decreasing across R2, meaning the power is likely increasing.