

# SOLUTION OF CH 2 SEDRA SMITH

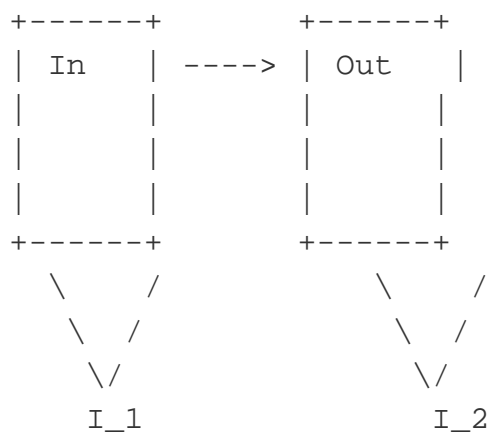
## 5TH EDITION

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**Solution Manual for Chapter 2 of Sedra/Smith: Microelectronic Circuits, 5th Edition**

#### **Question 1:**

Find the ratio of currents  $I_1$  and  $I_2$  in the circuit shown below:



#### **Answer:**

Using Kirchhoff's Current Law at node "Out," we get:

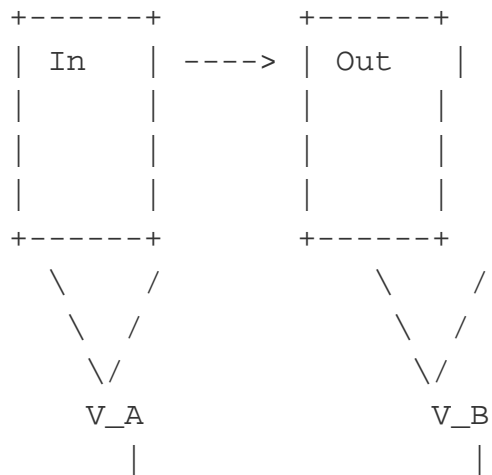
$$I_{in} = I_1 + I_2$$

Hence, the ratio of currents is:

$$I_1 / I_2 = (I_{in} - I_2) / I_2$$

#### **Question 2:**

For the circuit shown below, find the voltage at node A.



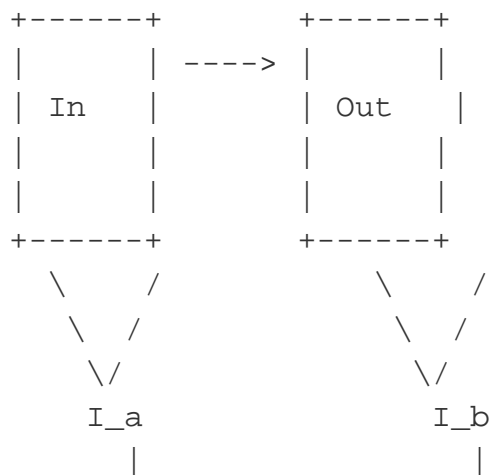
**Answer:**

Assuming the circuit is a voltage divider, we can write:

$$V_A = V_{in} * (R_2 / (R_1 + R_2))$$

**Question 3:**

Find the current flowing through the 2 k $\Omega$  resistor in the circuit shown below:



**Answer:**

Using Ohm's Law, we can write:

$$I_b = (V_{in} - V_{out}) / R_2$$

$$I_a = V_{out} / R_1$$

Since  $I_a = I_b$ , we can solve for  $V_{out}$ :

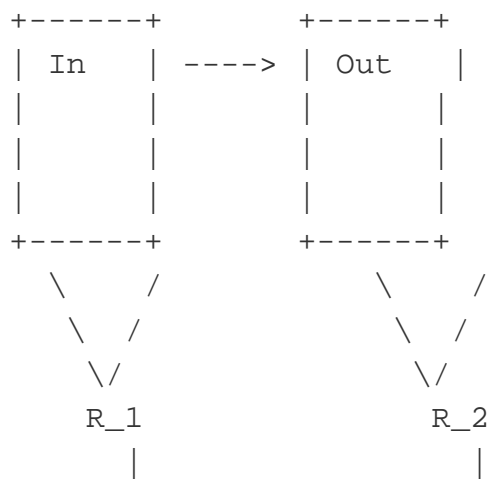
$$V_{out} = V_{in} * (R_2 / (R_1 + R_2))$$

Therefore, the current flowing through the 2 k $\Omega$  resistor is:

$$I_b = (V_{in} - V_{out}) / R_2 = V_{in} * (R_1 / (R_1 + R_2))$$

#### Question 4:

For the circuit shown below, find the equivalent resistance seen by the voltage source.



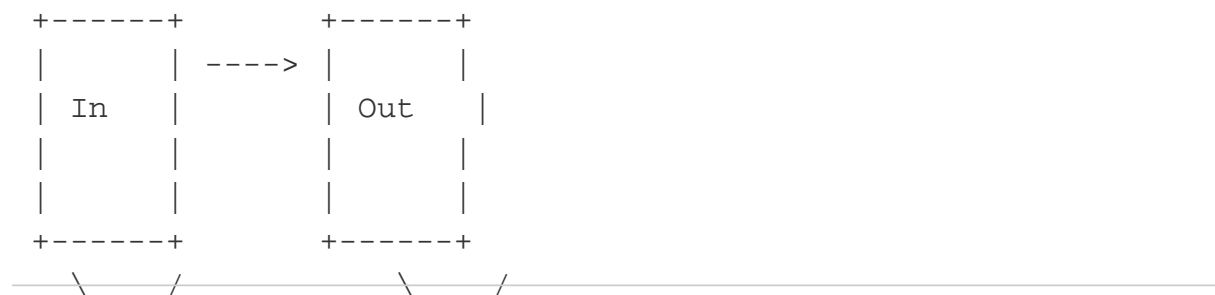
#### Answer:

The equivalent resistance is simply the sum of  $R_1$  and  $R_2$  in series:

$$R_{eq} = R_1 + R_2$$

#### Question 5:

Find the voltage at node A in the circuit shown below:





**Answer:**

Using voltage division, we can write:

$$V_A = V_{in} * (R_1 / (R_1 + R_2))$$

**Is Elisa in The Shape of Water a mermaid?** The theory is that Elisa either is part fish-creature like the amphibian man, or perhaps at one point was fully a fish creature herself, and somehow transformed.

**Who was the fish man in shape of water?** Doug Jones portrayed the fish monster in "The Shape of Water." He said that it was important to him for the character to be "sexy."

**How many Oscars did The Shape of Water win?** The Shape of Water garnered several awards and nominations with particular praise for del Toro's direction, the cast, Desplat's score, and the production design. The film earned thirteen nominations at the 90th Academy Awards, and went on to win four awards, including Best Picture and Best Director.

**Was The Shape of Water a book first?** The shape of water novel by Daniel Kraus is nothing like that at all. Rather than being a book adaptation of the film, Kraus's novel was written alongside del Toro's screenplay. Both writers worked independently on their respective projects but traded notes as the process went along.

**Why does Elisa have gills?** However, the creature heals himself and slashes Strickland's throat, killing him. As police arrive on the scene with Zelda, the creature takes Elisa and jumps into the canal where, deep under water, he heals her. When he applies his healing touch to the scars on her neck, they open to reveal gills like his.

**Did Elisa survive in Shape of water?** As the police arrive on the scene with Zelda, the Amphibian Man takes Elisa and jumps into the canal, swimming around her lifeless body. He applies his healing powers/ability to the scars on Elisa's neck, which open to reveal gills like his. Elisa jolts back to life and they embrace and kiss.

**Who is the real monster in The Shape of Water?** Ironically, the real monster in The Shape of Water is a man. Agent Strickland (Michael Shannon) is the one who captured the Amphibian Man and oversees the research in the facility.

**How did Elisa get scars in shape of water?** Elisa, a woman who can't speak, works in a government facility in Baltimore as a cleaner. Her official surname is Esposito, meaning "orphan." She was found as a baby by a river with scars on her neck where her voice box was cut.

**What is the point of shape of water?** Like most fairy tales — which often involve glorious and beautiful beings who take on disguises to teach craven people a lesson — The Shape of Water is devoted to reminding us that everyone is beautiful, and that it's those we cravenly consider maimed and strange and frightening who will inherit the earth.

**Where was The Shape of Water filmed?** The Shape of Water was shot in Toronto and Hamilton, Ontario, Canada. Filming locations included Hamilton City Hall, Massey Hall, Elgin Theatre, and University of Toronto Scarborough.

**What happened at the end of The Shape of Water?** As Giles narrates the final scene, the creature "heals" Elisa, bringing her back to life, and turns her neck scars into gills so that the two of them can live together underwater, happily ever after.

**Is Abe sapien in The Shape of Water?**

**Is The Shape of Water based on a true story?** Trailer for fantasy romance film The Shape of Water Unsurprisingly, The Shape of Water is not based on any myths or legends or "true stories".

**Is Elisa deaf in The Shape of Water?** Hawkins is a likeable screen presence in The Shape of Water, and while her character isn't deaf, she does communicate in sign language – so wouldn't it make more sense to have a deaf or sign-language using

actor rather than having her learn it?

**Who is the amphibian in The Shape of Water?** Doug Jones: Amphibian Man.

**What is the poem at the end of The Shape of Water?** Unable to perceive the shape of you, I find you all around me. Your presence fills my eyes with your love. It humbles my heart, for you are everywhere. Jalal al-Din Rumi.

**Why does Elisa cry at the end?** Eliza gasps because she sees the audience and realises her husband's story is being told in 2020. His story lives on, and she made that happen by telling it. To go one step further, the final gasp could touch on the last time Eliza says 'Will they tell my story?'

**Who is the fishman in The Shape of Water?** The supporting cast includes actor Doug Jones as the Fishman (referred to mostly as “the asset”), Octavia Spencer as Zelda Fuller, Michael Shannon as Richard Strickland and Richard Jenkins as Giles.

**Why can't Elisa speak in The Shape of Water?** Elisa was orphaned as a child, found by a river with three slashes across her throat, which had severed her vocal cords and left her unable to speak.

**What is Giles to Elisa in The Shape of Water?** Elisa's only other friend in the movie lives next door to her upstairs from a movie palace--Giles, played by the excellent Richard Jenkins.

**How did they film the underwater scenes in The Shape of Water?**

**Why is it called The Shape of Water?** The movie takes its name from Plato's idea that in its purest form, water takes the shape of an icosahedron, a 20-sided polyhedron, evoking the idea that beauty, and humanity, has many faces.

**Who is the alien from The Shape of Water?** The Amphibian Man was brought to be studied and experimented on, but with some help, Elisa fights for the creature's survival. The Amphibian Man was inspired by the Creature from the Black Lagoon, but its story is a much bigger mystery than the Gill-man's.

**Is The Shape of Water a sequel to Creature from the Black Lagoon?** The Shape of Water, which won the 2018 Oscar for Best Picture, felt like the remake of Creature

from the Black Lagoon horror fans deserve; it wasn't intended as a remake, but had the original film's spirit throughout.

**Why did Shape of water win Oscar?** The Bagger put the question of why “Shape” has surged to the fore to a handful of Hollywood insiders and academy voters, and received answers as varied as the colors of a merman's scales. Among the many thoughts: The film was not just beautifully made but also emotionally resonant.

**Is Elisa deaf?** Elisa (Sally Hawkins), the young janitress who falls in love with our amphibious otherworldly creature (Doug Jones) in the government laboratory, is mute. She doesn't speak, but she isn't deaf.

**Did Eliza live in The Shape of Water?** We know the creature can heal, grow Richard Jenkin's hair, etc....so that means he heals Elisa and gives her gills so she can breathe and live with him underwater. Happily Ever after.

**How did Elle become a mermaid?** Mr. Locke locked Elizabeth up, and planned on draining her of her magic, after the last show, which would kill her. Locke had also kidnapped Elle, as a vessel for the magic, which would turn her into mermaid.

**What was the creature in The Shape of Water?** The Asset is the titular character in the 2017 fantasy romance film The Shape of Water by Guillermo del Toro. He is an amphibian-humanoid creature from the Amazon River and has been held captive at a secret government facility. He was taken from the river before the beginning of the movie.

**Why can't Elisa speak in The Shape of Water?** Elisa was orphaned as a child, found by a river with three slashes across her throat, which had severed her vocal cords and left her unable to speak.

**Is Bella from h2o a mermaid?** Bella became a mermaid when she was nine years old. She lived with her parents in Ireland at the time, but they were busy at work, so she explored the area a lot. She found a sea cave with a moon pool, and when she jumped into it on a Full Moon, she went through metamorphosis.

**Does David find out Sirena is a mermaid?** He and Sirena become mutual love interests. David finds out about mermaids at the end of series 2.

**How old was the mermaid girl when she died?** She was 10. Doctors had predicted she would only survive only for days after her birth at the most, but the girl, described by her mother as “a tough little thing,” died at Maine Medical Center on Friday afternoon, hospital spokesman John Lamb said.

**Who does the mermaid marry?** In the Disney movie, Ariel marries Eric and the two live happily ever after. In Andersen's fairy tale, the Little Mermaid takes the knife and agrees to kill the prince. But when she tries to do it, she finds that she can't kill him, and instead, she sacrifices herself to save his life and turns into sea foam.

**How did Elisa get scars in shape of water?** Elisa, a woman who can't speak, works in a government facility in Baltimore as a cleaner. Her official surname is Esposito, meaning “orphan.” She was found as a baby by a river with scars on her neck where her voice box was cut.

**What is the point of shape of water?** Like most fairy tales — which often involve glorious and beautiful beings who take on disguises to teach craven people a lesson — *The Shape of Water* is devoted to reminding us that everyone is beautiful, and that it's those we cravenly consider maimed and strange and frightening who will inherit the earth.

**Is *The Shape of Water* a *Hellboy* prequel?** However, del Toro debunked the fan theory that *The Shape of Water* is some kind of prequel to *Hellboy*, even though he may have inadvertently encouraged the notion by casting actor Doug Jones for both roles.

**What happened to Elisa at the end of *Shape of water*?** The creature literally gives Elisa gills. The most straightforward interpretation of the ending is that the creature heals Elisa's injuries and literally turns her scars into gills so that she can breathe underwater.

**Is *shape of water* inappropriate?** It's from beloved director Guillermo Del Toro (*Pan's Labyrinth*), and it easily ranks among his best films, but it's only recommended for older teens and up due to its mature content.

**Did Eliza live in *The Shape of Water*?** We know the creature can heal, grow Richard Jenkin's hair, etc....so that means he heals Elisa and gives her gills so she



can breathe and live with him underwater. Happily Ever after.

**How did Rikki become a mermaid?** Rikki was hit by a water sprinkler during her walk and got wet, so she transformed. Rikki was shown third to discover her tail. However, she was the first one to discover that one drop of water was enough to make her transform.

**What was the tentacle doing to Bella?** At Mako, Rikki and Cleo discover that the tentacle seems to be turning Bella into water. But when they manage to pry her away from the tentacle, Bella says that she felt safe when she was with it.

**What is Bella Hartley's power?** Bella possesses the ability to transform into a mermaid ten seconds after at the touch of water. Once her body is completely dry, she turns back into human along with the outfit she was wearing before she transformed. Bella has the ability to make shapes in the water and to make them stay long.

### **Teamwork Interactive Tasks to Get Students Talking**

**Q: Why is teamwork important for students?** **A:** Teamwork fosters collaboration, communication, problem-solving, and social skills crucial for academic and professional success.

**Q: What are some interactive tasks to encourage teamwork?**

**1. Pictionary Relay:** Divide students into teams. Provide one team member with a secret word or image. They take turns drawing the word/image while teammates guess.

**A:** This task promotes communication, creativity, and problem-solving.

**Q: How does role-playing contribute to teamwork?**

**2. Role-Playing Scenarios:** Assign students different roles in a realistic situation. They act out the scenario and work together to find a solution.

**A:** Role-playing fosters empathy, negotiation skills, and the ability to see multiple perspectives.

**Q: What is the benefit of using breakout rooms?**

**3. Breakout Room Discussions:** Divide students into smaller breakout rooms using online platforms. Each group discusses a specific topic and presents their findings to the class.

**A:** Breakout rooms provide a safe space for students to share ideas, collaborate, and build confidence.

**Q: How can technology enhance teamwork?**

**4. Online Collaboration Tools:** Use platforms like Google Docs, Trello, or Miro for real-time collaboration. Students can brainstorm, write, or create projects together.

**A:** Online tools facilitate asynchronous collaboration, track progress, and improve communication.

### **Conclusion:**

Incorporating these interactive teamwork tasks into the classroom can effectively encourage students to engage in meaningful conversations and enhance their teamwork skills. These activities foster collaboration, communication, problem-solving, and empathy, which are essential not only for academic success but also for their personal and professional growth.

**What are the causes and problems of land pollution?** Land contamination can result from a variety of intended, accidental, or naturally occurring activities and events such as manufacturing, mineral extraction, abandonment of mines, national defense activities, waste disposal, accidental spills, illegal dumping, leaking underground storage tanks, hurricanes, floods, ...

**What are 4 things people can do to reduce land pollution?**

**What are the effects of land pollution?** The effects of land pollution can be catastrophic for the environment, animals, and humans. Land pollution can lead to groundwater poisoning, deterioration of agricultural fields, climate change, health problems, and socio-economic impact on humans.

**What are the 10 causes of soil pollution?**

**What are 10 effects of pollution?** Public health concerns related to high air pollution exposures include cancer, cardiovascular disease, respiratory diseases, diabetes mellitus, obesity, and reproductive, neurological, and immune system disorders.

**What are 10 ways to reduce pollution?**

**How can we fix land pollution?**

**What are 5 ways to help the environment from pollution?**

**What are the 3 ways you can help reduce pollution?** On Days when High Particle Levels are Expected, Take these Extra Steps to Reduce Pollution: Reduce the number of trips you take in your car. Reduce or eliminate fireplace and wood stove use. Avoid burning leaves, trash, and other materials.

**Why should we stop land pollution?** Soil pollution, water pollution, deforestation, excessive fertilization, and the use of pesticides and other toxic chemicals degrade the rich biodiversity of soil around the world, diminish ecosystem sustainability, reduce food crop production, and threaten human health and well-being.

**How to stop soil pollution?**

**What are five causes of pollution?** Household combustion devices, motor vehicles, industrial facilities and forest fires are common sources of air pollution. Pollutants of major public health concern include particulate matter, carbon monoxide, ozone, nitrogen dioxide and sulfur dioxide.

**How to prevent pollution?**

**What is the danger of a polluted environment?** Health Effects In addition, long-term exposure to air pollution can cause cancer and damage to the immune, neurological, reproductive, and respiratory systems. In extreme cases, it can even cause death.

**What is a 5 sentence about soil pollution?** Soil pollution can be defined as persistent of chemicals, salts, toxic compounds, radioactive materials, that have adverse effects on animal health and plant growth. There are many ways through which soils can get polluted. These are: Discharge of industrial waste into the Earth surfaces.

**How can you tell if the air is clean or dirty?** When it starts up, sometimes a puff of dark smoke comes out of the exhaust pipe. At times like that you can see dirty air - it looks hazy and brownish. If your window is open, you might be able to smell the pollution. But sometimes the air can be dirty and you can't see it or smell it.

**What are 4 problems of pollution?** Air pollution can harm people's health and damage the environment. Air pollution can harm you even if you can't see it or smell it. It also can hurt trees and wildlife, cause haze that blocks scenic views, and contribute to water pollution and climate change.

**What is soil land pollution?** Land pollution refers to the deterioration of the earth's land surfaces at and below ground level. It is caused by the accumulation of solid and liquid waste materials that contaminate groundwater and soil.

**How to control pollution in 100 words?** We can stop environmental pollution by planting more trees and taking care of the existing ones. Reduce the usage of vehicles, reuse and recycle items, proper disposal of waste, saying no to polythene and maintaining a proper sanitation and cleanliness in our surroundings could also reduce pollution. Hope it helps !!

**How to deal with poor air quality?**

**What are the 5 major environmental problems and solutions?** What are the 5 Major Environmental Problems and Solutions? The five major environmental problems are climate change, pollution, habitat destruction, deforestation, and loss of biodiversity. Solutions include promoting renewable energy, habitat conservation, sustainable forestry, and species conservation efforts.

**What are the 10 effects of environmental pollution?**

**What are the solutions to pollution?** The most basic solution for air pollution is to move away from fossil fuels, replacing them with alternative energies like solar, wind and geothermal. Producing clean energy is crucial. But equally important is to reduce our consumption of energy by adopting responsible habits and using more efficient devices.

**What are 5 ways to prevent soil pollution?** Solutions to reduce soil pollution Encourage a more eco-friendly model for industry, farming and stock breeding, among other economic activities. Improve urban planning and transport planning and waste water treatment. Improve the management of mining waste, restore the landscape and conserve topsoil.

**How to reduce land pollution?** Reducing the use of chemical fertilizers and pesticides can help in preventing land pollution. In addition to contaminating the soil, they also do no good to the crops. Therefore, farmers must use natural ingredients instead of these harmful toxins. They can switch to manure and bio-fertilizers.

**What are 50 ways to reduce pollution?**

**What is the most effective way to reduce pollution?** Reducing energy consumption helps reduce air pollution. If less gasoline, natural gas and electricity (power plants burn fossil fuels to generate electricity) are used, not only do your bills decrease but less pollutants are emitted.

**What are the main causes of pollution?** Household combustion devices, motor vehicles, industrial facilities and forest fires are common sources of air pollution. Pollutants of major public health concern include particulate matter, carbon monoxide, ozone, nitrogen dioxide and sulfur dioxide.

**What are the effects of soil pollution?** Soil pollution affects soil fertility; this jeopardises food security, which is essential for human survival. It also poses risks to human health — both indirectly through the consumption of contaminated food and drinking water, and directly through exposure to contaminated soil.

**What is land pollution for kids?** Any contamination of the soil and ground caused by human activity is called land pollution. Various activities, such as waste disposal, industrial activity, mining, and agriculture, contribute to land pollution. Land pollution

is harmful to the environment and ecosystems.

**What are the five effects of environmental pollution?** Pollutants in the environment or climate-related events can have a massive impact on our health. Air and noise pollution, and heavy metals like mercury are directly related to health issues like asthma, hearing loss, dehydration and heart diseases.

**What are the 10 major causes of environmental pollution?**

**What are 5 natural causes of pollution?**

**What is the biggest cause of pollution in the world?** 1 – Fossil fuels – It is no surprise that the fossil fuels sector is the most polluting in the world. Despite this knowledge, emissions from fossil fuels keep increasing.

**How to reduce land pollution?** Reducing the use of chemical fertilizers and pesticides can help in preventing land pollution. In addition to contaminating the soil, they also do no good to the crops. Therefore, farmers must use natural ingredients instead of these harmful toxins. They can switch to manure and bio-fertilizers.

**How to fix soil pollution?**

**Why is land pollution a problem?** It results in food crop contamination and disease. Soil pollutants wash into rivers causing water pollution. Deforestation causes soil erosion, liberates sequestered pollutants, and generates airborne dust. Pollution of air, water, and soil is responsible for at least 9 million deaths each year.

**What are 5 facts about land pollution?** Energy production and food waste are the reason for about 80% of the land pollution. 80% of the items on the landfills are recyclable. The planet loses 24 billion tonnes of topsoil each year because of land pollution. The rubbish we globally generate is enough to fill 63 000 waste removal trucks.

**How to stop pollution?**

**What pollutes the land?** The Main Causes of Land Pollution. While there are many causes of land pollution, the main contributors include litter, waste, urbanization, construction, mining, extraction and agriculture. Let's dive into how these different

issues lead to increased land pollution.

**What is soil land pollution?** Soil pollution is mostly caused by chemical substances produced by human activity. Causes and consequences of acid rain. Discover them. The soil is the skin of the earth, a mantle full of scars, thousand-year-old wrinkles and more recent injuries caused both by man and nature itself.

**How does a dirty environment affect human health?** Environmental pollutants can cause health problems like respiratory diseases, heart disease, and some types of cancer. People with low incomes are more likely to live in polluted areas and have unsafe drinking water. And children and pregnant women are at higher risk of health problems related to pollution.

**How can we control air, water, and soil pollution?**

[the shape of water cesada, teamwork interactive tasks to get students talking, land pollution problems and solutions](#)

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