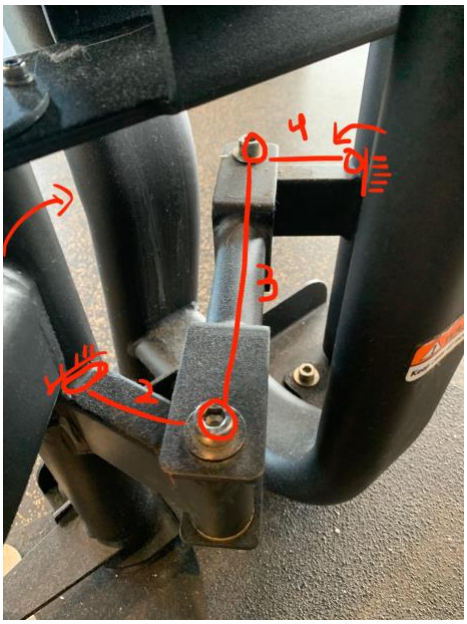
ME 481 - H02 **Name : Abdul Al Saadi**

1) Download https://www.mne.psu.edu/sommer/me481/h02.docx
2) Obtain a digital image of a **planar** linkage mechanism, and paste it into this MS-Word document. You may take a digital photo, scan a hardcopy photograph or drawing, or obtain an on-line image.

3) Provide a name and brief description of the purpose for your mechanism.

The mechanism used in this hip adduction workout machine can be modeled as 4 bar planer linkage. As forces are applied to the thigh pads, angles of the pins connected to the pads will change as well as the other two pins accordingly due to resulting torques on the rods connecting the pads to the mechanism's pins. The purpose of this mechanism is to link hip pads in order to move them equally when force applied to them.



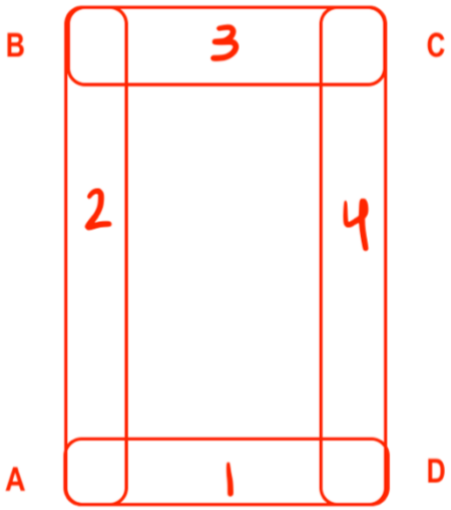
ME 481 - H02 **Name : Abdul Al Saadi**

4) Use the MS-Word drawing toolbar or other drawing tools to draw the kinematic skeletal diagram for your mechanism directly on top of your image. Additionally, copy the skeletal diagram and past it onto a blank area of this this MS-Word file. Clearly label the links and joints. Number the links using 1 for the ground link, and letter the joints A, B, C, etc.

5) Identify the number of links (nL), 1 DOF joints (nJ_1), 2 DOF joints (nJ_2) and mobility (M).

nL ____4_____ nJ_1 ____4_____ nJ_2 ____0_____ M ____1_____

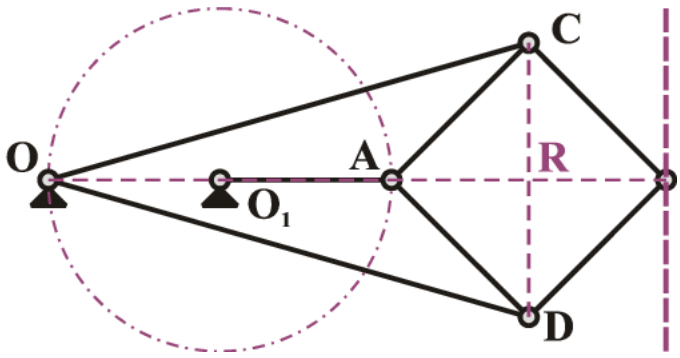
6) Diagram the topology of your mechanism.



7) Submit PDF copy via Canvas.

EXTRA CREDIT

Provide a drawing of the Peaucellier mechanism. Diagram its topology and analyze its mobility.

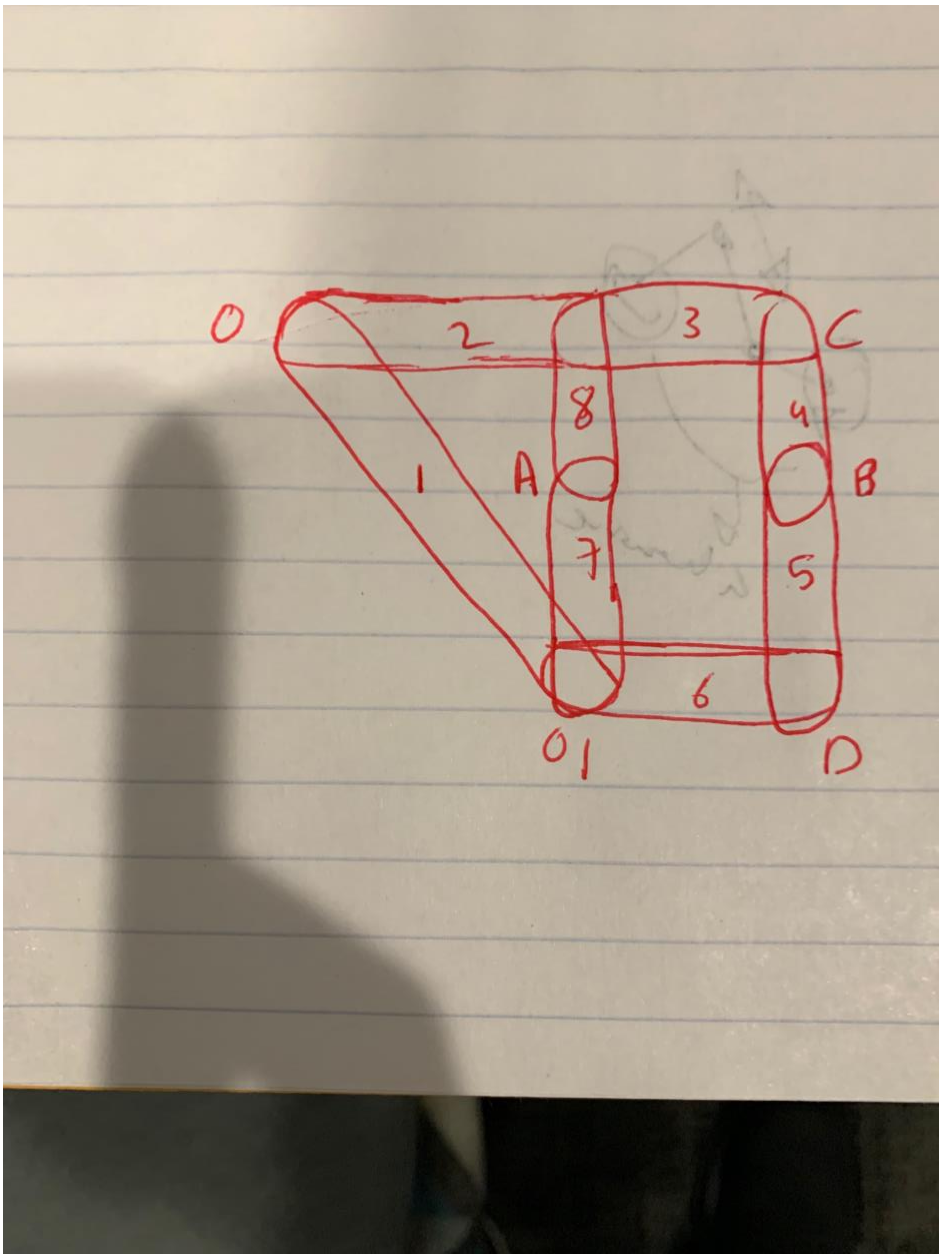


nL ____8_____ nJ_1 ____8_____ nJ_2 ____0_____ M ____1_____

ME 481 - H02 **Name : Abdul Al Saadi**

using: M = 3*(nL-1) – 2(L) = 3*(8-1)-2*(10)

topology :



Source:
https://www.researchgate.net/figure/The-Peaucellier-Lipkin-straight-line-mechanism-From-the-geometry-of-the-figure-it_fig2_283659443

ME 481 - H02 **Name: Nicholas Bosak**

1) Download https://www.mne.psu.edu/sommer/me481/h02.docx

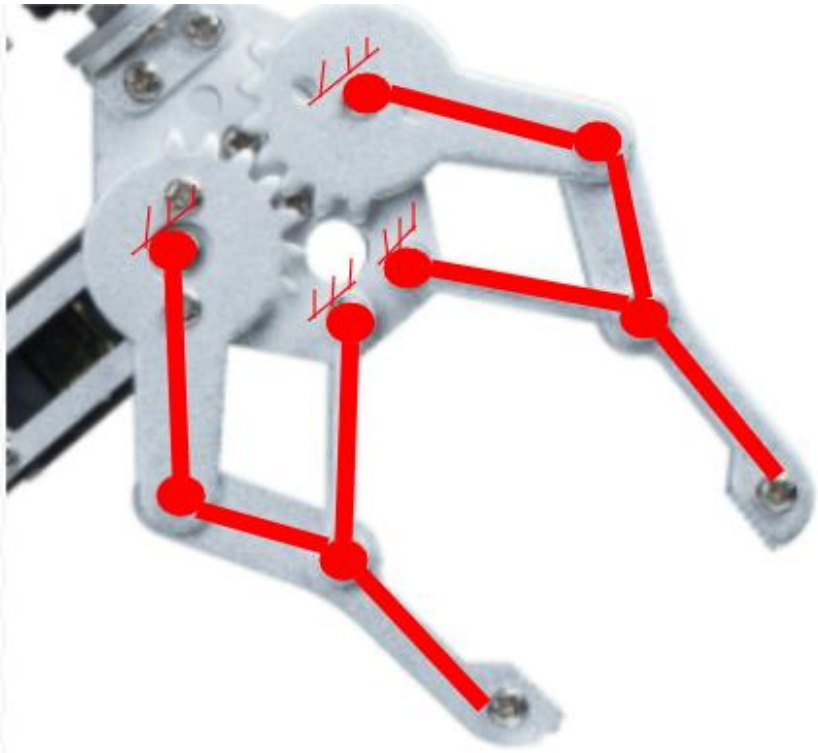
2) Obtain a digital image of a **planar** linkage mechanism, and paste it into this MS-Word document. You may take a digital photo, scan a hardcopy photograph or drawing, or obtain an on-line image.

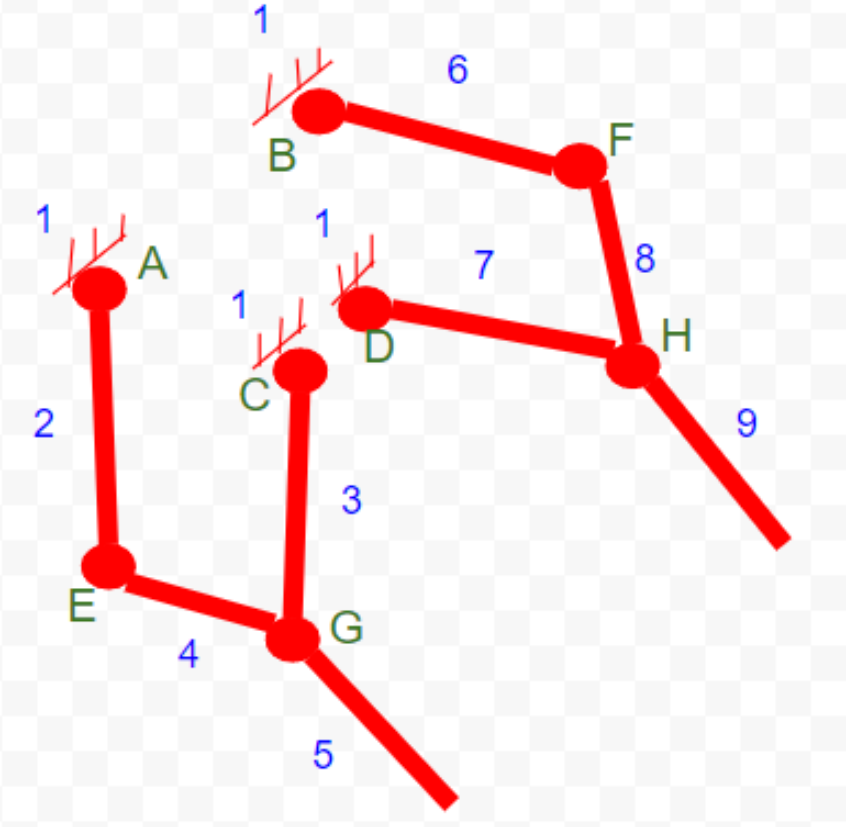
3) Provide a name and brief description of the purpose for your mechanism.

This mechanism is a robot claw at the end of a robot arm. This mechanism appears to be a series of revolute joints that form the two fingers of the claw and join them to the wrist.

4) Use the MS-Word drawing toolbar or other drawing tools to draw the kinematic skeletal diagram for your mechanism directly on top of your image. Additionally, copy the skeletal diagram and past it onto a blank area of this this MS-Word file. Clearly label the links and joints. Number the links using 1 for the ground link, and letter the joints A, B, C, etc.

ME 481 - H02 **Name: Nicholas Bosak**





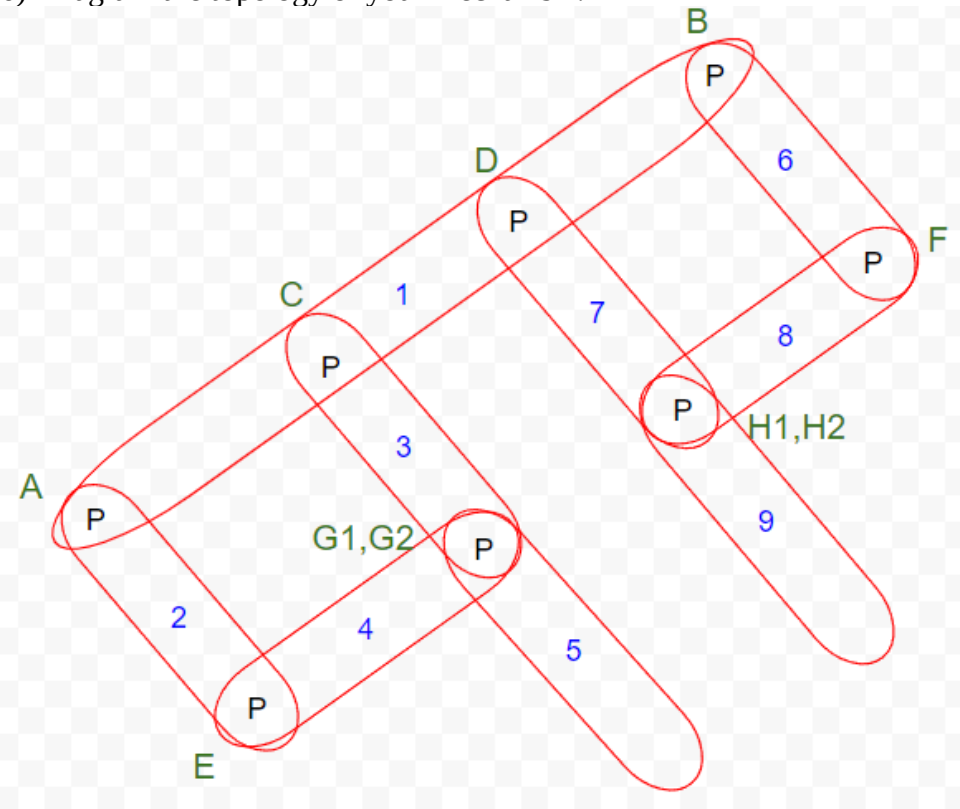
ME 481 - H02 **Name: Nicholas Bosak**

5) Identify the number of links (nL), 1 DOF joints (nJ_1), 2 DOF joints (nJ_2) and mobility (M).

M = 3(nL-1) - 2 nJ1 - nJ2

nL = 9 nJ_1 = 10 nJ_2 = 0 M = 4

6) Diagram the topology of your mechanism.

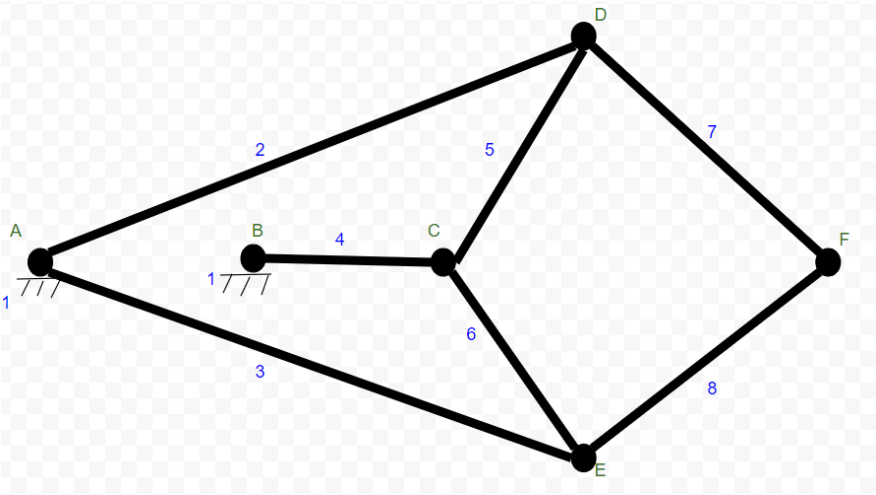


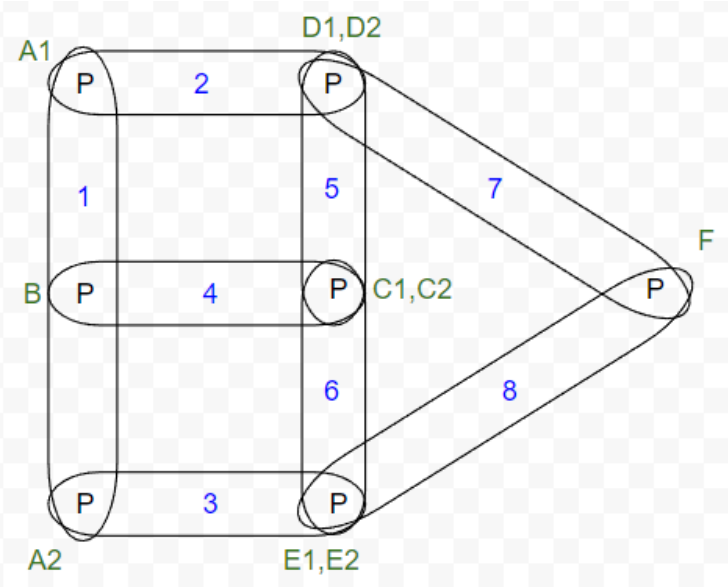
7) Submit PDF copy via Canvas.

ME 481 - H02 **Name: Nicholas Bosak**

EXTRA CREDIT

Provide a drawing of the Peaucellier mechanism. Diagram its topology and analyze its mobility.





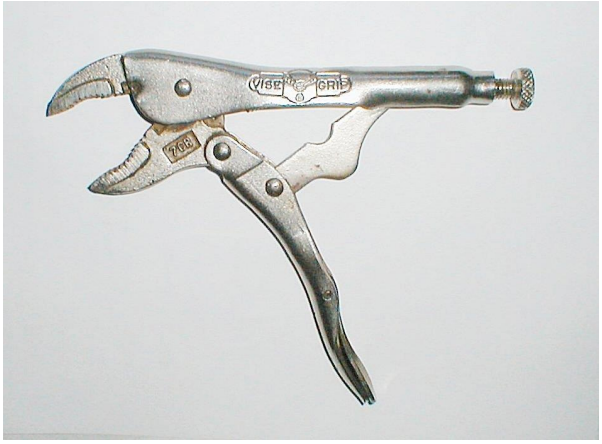
M = 3(nL-1) - 2 nJ1 - nJ2

nL = 8 $nJ_1 = 10$ $nJ_2 = 0$ M = 1

ME 481 - H02 **Name Michael Breisinger**

1) Download https://www.mne.psu.edu/sommer/me481/h02.docx

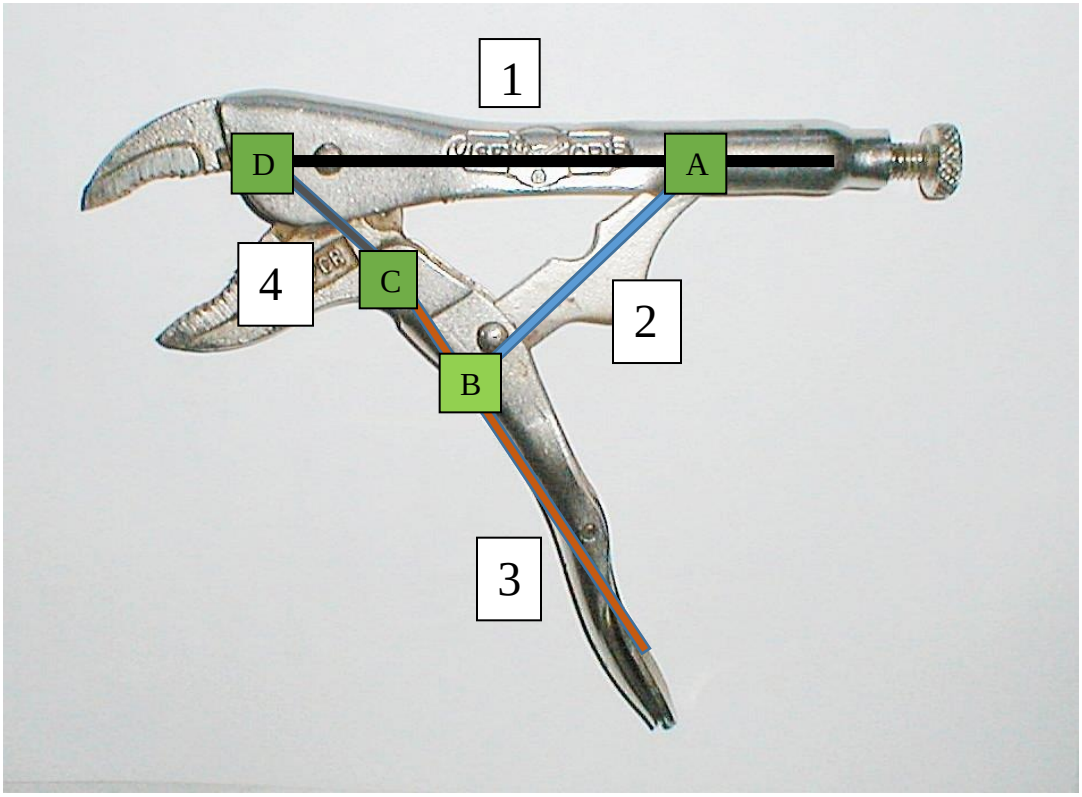
2) Obtain a digital image of a **planar** linkage mechanism, and paste it into this MS-Word document. You may take a digital photo, scan a hardcopy photograph or drawing, or obtain an on-line image.



3) Provide a name and brief description of the purpose for your mechanism.

Curved jaw Locking Pliers. Used for Clamping and handling objects.

4) Use the MS-Word drawing toolbar or other drawing tools to draw the kinematic skeletal diagram for your mechanism directly on top of your image. Additionally, copy the skeletal diagram and past it onto a blank area of this this MS-Word file. Clearly label the links and joints. Number the links using 1 for the ground link, and letter the joints A, B, C, etc.



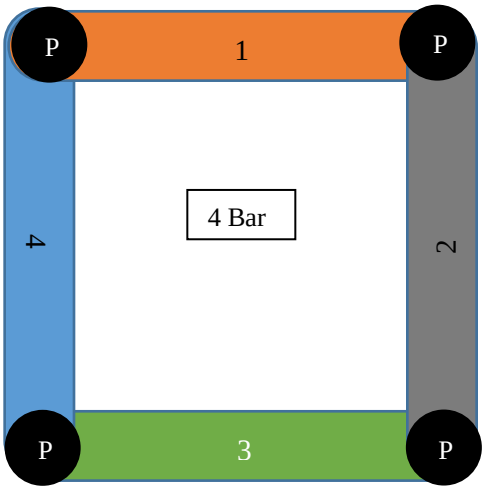
ME 481 - H02 **Name Michael Breisinger**

5) Identify the number of links (nL), 1 DOF joints (nJ_1), 2 DOF joints (nJ_2) and mobility (M).

nL _____4___ nJ_1 ____4_____ nJ_2 ___0_____ M _____1_____

M=3*(4-1) – 2*4=1

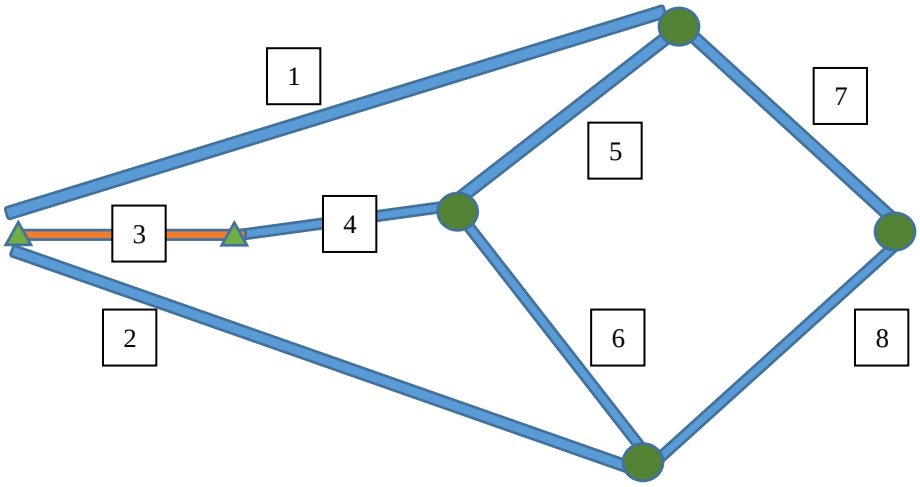
6) Diagram the topology of your mechanism.



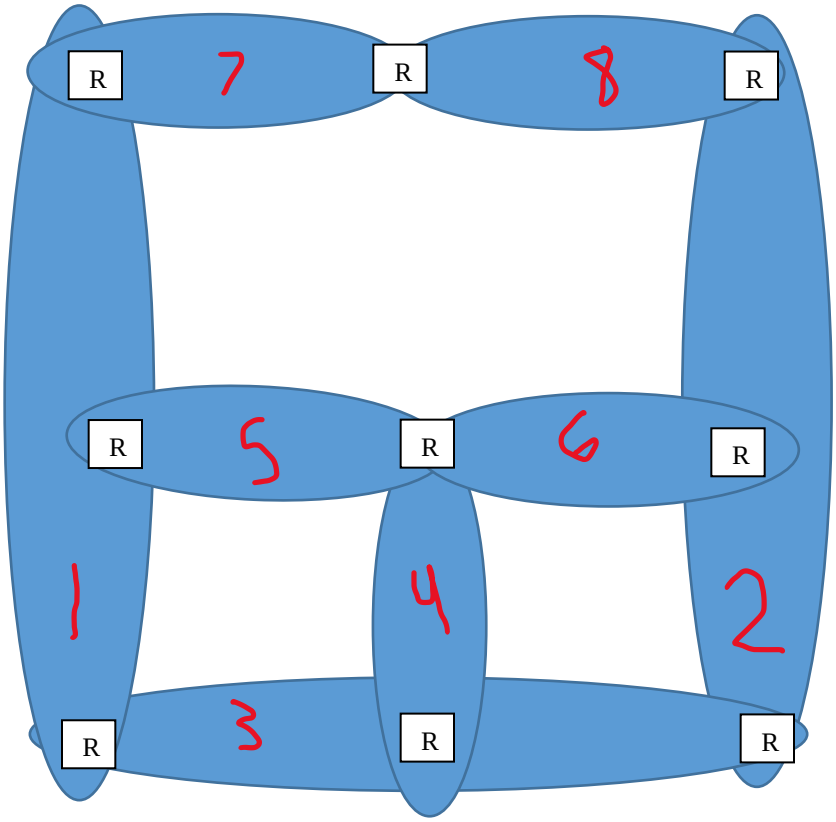
7) Submit PDF copy via Canvas.

EXTRA CREDIT

Provide a drawing of the Peaucellier mechanism. Diagram its topology and analyze its mobility.



ME 481 - H02 **Name Michael Breisinger**



Mobility: nL=8, nJ_1= 10 , nJ_2= 0
3*(8-1)-2*10= 1
Mobility =1

ME 481 - H02 **Name** Nicholas Cenek

1) Obtain a digital image of a **planar** linkage mechanism, and paste it into this MS-Word document. You may take a digital photo, scan a hardcopy photograph or drawing, or obtain an on-line image.

2) Provide a name and brief description of the purpose for your mechanism.

This mechanism is called a sitting calf raise. It is used in the gym to target calf muscles by adding a load to the end of link 2 and restraining you legs with the adjustable and pushing up from the bottom base with the balls of your feet.

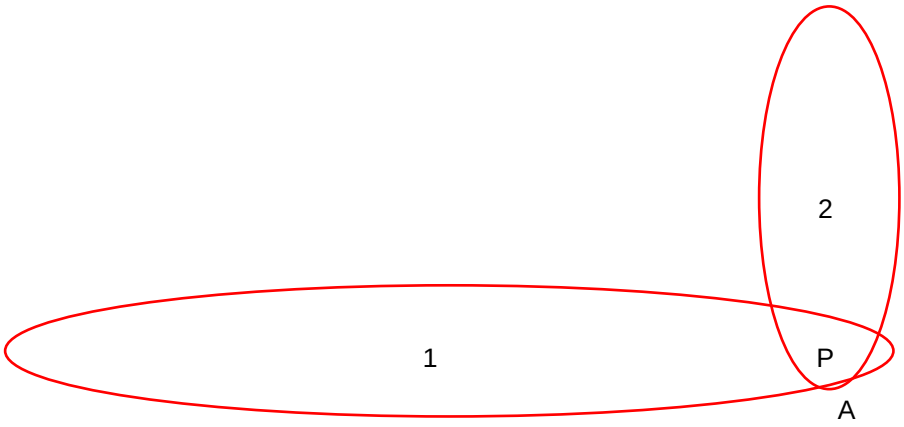
3) Skeletal Diagram

ME 481 - H02 **Name** Nicholas Cenek

4) Identify the number of links (nL), 1 DOF joints (nJ_1), 2 DOF joints (nJ_2) and mobility (M).

nL 2 nJ_1 1 nJ_2 0 M 1

5) Diagram the topology of your mechanism.



ME 481 - H02 **Name** _____

1) Download https://www.mne.psu.edu/sommer/me481/h02.docx

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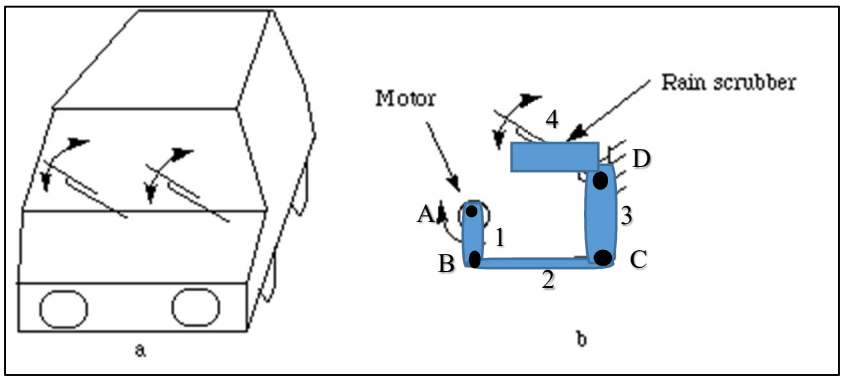
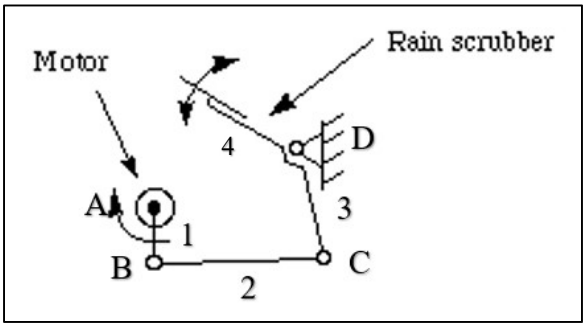


3) Provide a name and brief description of the purpose for your mechanism.

My mechanism is a windshield wiper. Its purpose is to clear your windshield from precipitation which hinders visibility.

4) Use the MS-Word drawing toolbar or other drawing tools to draw the kinematic skeletal diagram for your mechanism directly on top of your image. Additionally, copy the skeletal diagram and past it onto a blank area of this this MS-Word file. Clearly label the links and joints. Number the links using 1 for the ground link, and letter the joints A, B, C, etc.

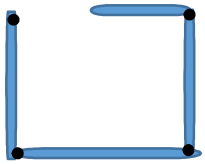


5) Identify the number of links (nL), 1 DOF joints (nJ_1), 2 DOF joints (nJ_2) and mobility (M).

nL ____4_____ nJ_1 _____4_____ nJ_2 _____0_____ M ____1_____

M = 3(N-1) – 2(J1) – J2
M = 3(4-1) – 2(4) – 0
M = 1

6) Diagram the topology of your mechanism.



7) Submit PDF copy via Canvas.

EXTRA CREDIT

Provide a drawing of the Peaucellier mechanism. Diagram its topology and analyze its mobility.

ME 481 - H02 **Name Francesco Di Cocco**

1) Download https://www.mne.psu.edu/sommer/me481/h02.docx

2) Obtain a digital image of a **planar** linkage mechanism, and paste it into this MS-Word document. You may take a digital photo, scan a hardcopy photograph or drawing, or obtain an on-line image.

3) Provide a name and brief description of the purpose for your mechanism.

Vehicle Steering system. This is a basic diagram of a vehicle's steering. Here you can see two kingpin bolts, two steering arms, and a tie rod connecting them.

4) Use the MS-Word drawing toolbar or other drawing tools to draw the kinematic skeletal diagram for your mechanism directly on top of your image. Additionally, copy the skeletal diagram and past it onto a blank area of this this MS-Word file. Clearly label the links and joints. Number the links using 1 for the ground link, and letter the joints A, B, C, etc.

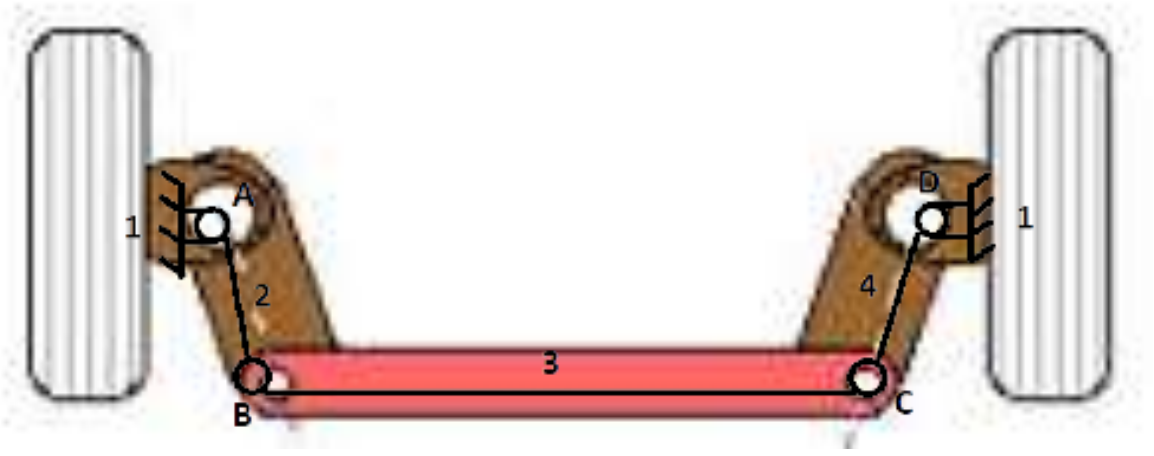
5) Identify the number of links (nL), 1 DOF joints (nJ_1), 2 DOF joints (nJ_2) and mobility (M).

nL ____4_____ nJ_1 ____4_____ nJ_2 ____0_____ M _____1_____

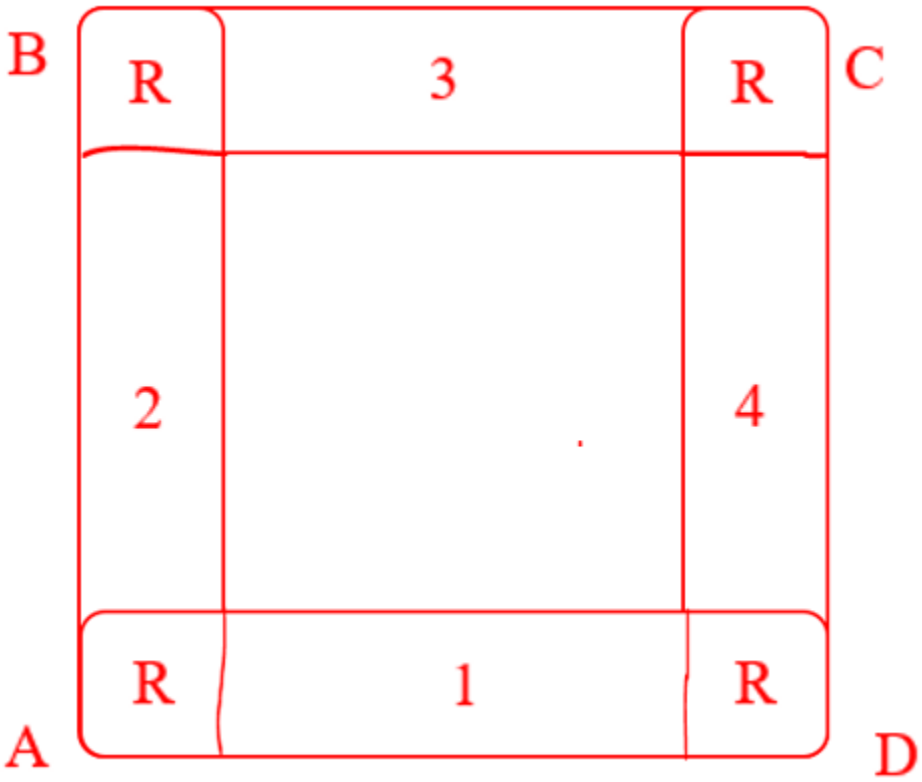
6) Diagram the topology of your mechanism.

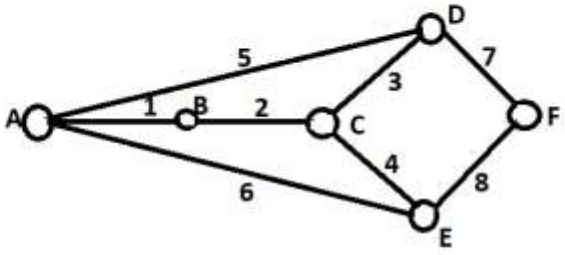
7) Submit PDF copy via Canvas.

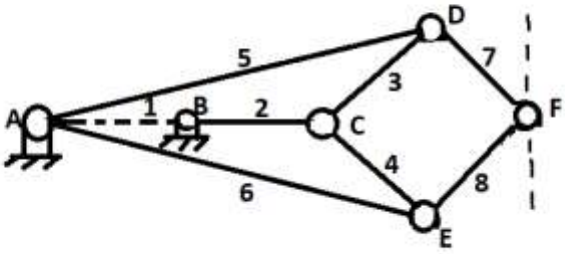
EXTRA CREDIT
Provide a drawing of the Peaucellier mechanism. Diagram its topology and analyze its mobility.



ME 481 - H02 **Name Francesco Di Cocco**




D
5
7
3
1
B
2
A
C
F
4
8
6
E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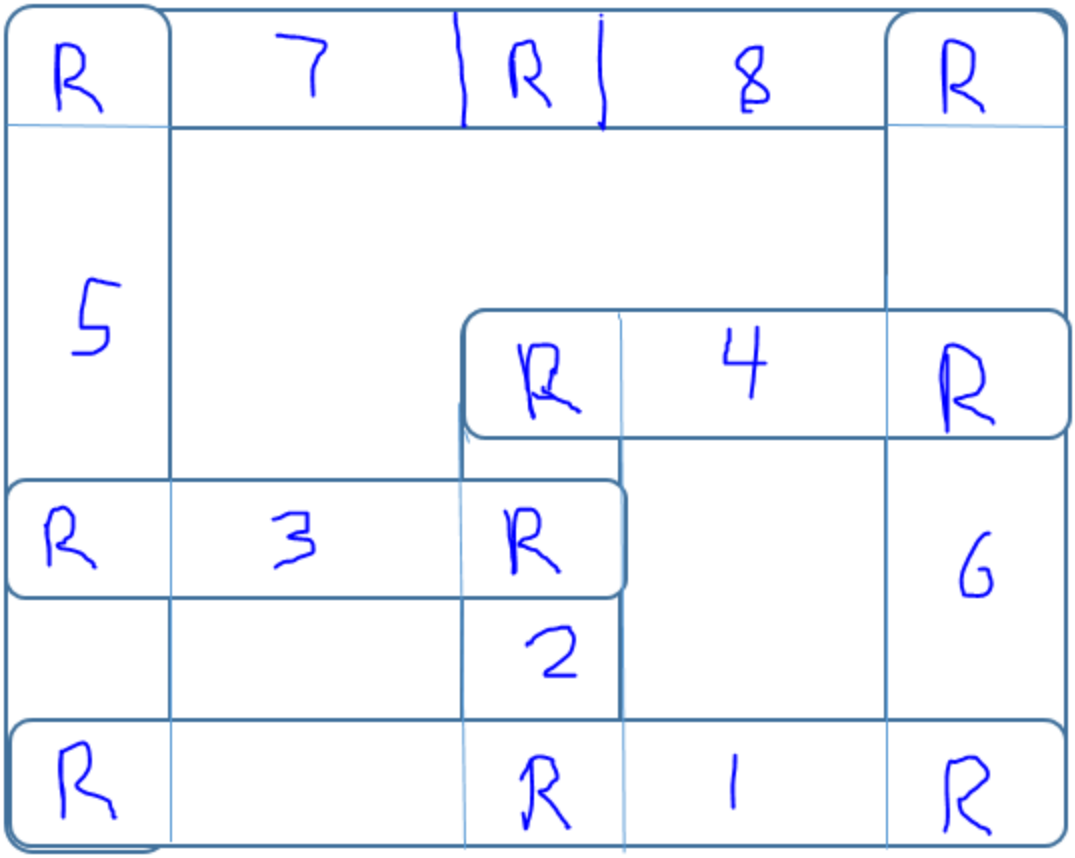


Mobility:

nL _____8_____ nJ_1 ___10_____ nJ_2 ___0_____ M ____1_____

M=3(nL-1)-2nJ1-nJ2= 3(8-1)-2(10)-0= 1

H02

Friday, January 14, 2022 11:29 AM

h02

h02.docx

ME 481 - H02 **Name** Jacob Faulds

1) Download https://www.mne.psu.edu/sommer/me481/h02.docx

2) Obtain a digital image of a **planar** linkage mechanism, and paste it into this MS-Word document. You may take a digital photo, scan a hardcopy photograph or drawing, or obtain an on-line image.

3) Provide a name and brief description of the purpose for your mechanism.

scissor lift (screw driven) - used to lift heavy objects

4) Use the MS-Word drawing toolbar or other drawing tools to draw the kinematic skeletal diagram for your mechanism directly on top of your image. Additionally, copy the skeletal diagram and past it onto a blank area of this this MS-Word file. Clearly label the links and joints. Number the links using 1 for the ground link, and letter the joints A, B, C, etc.

5) Identify the number of links (nL), 1 DOF joints (nJ_1), 2 DOF joints (nJ_2) and mobility (M).

nL 6 nJ_1 7 nJ_2 0 M 1

6) Diagram the topology of your mechanism.

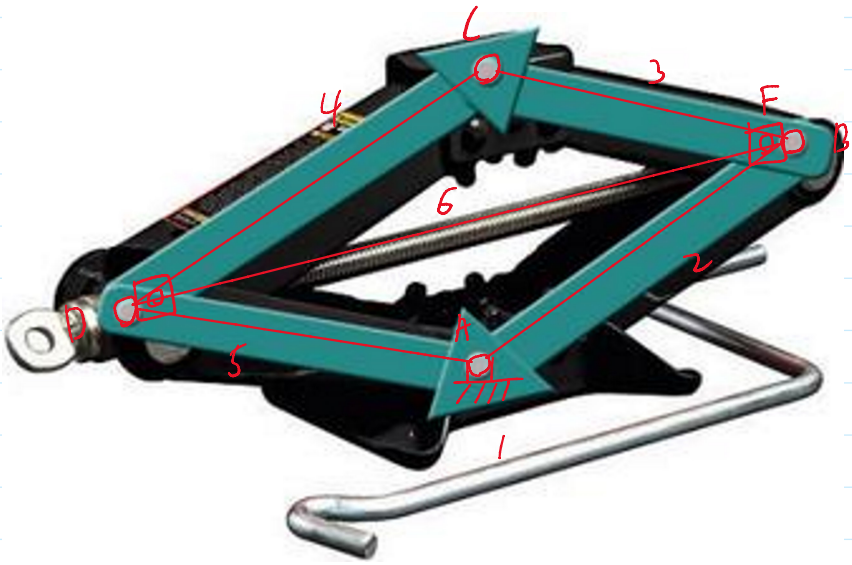
7) Submit PDF copy via Canvas.

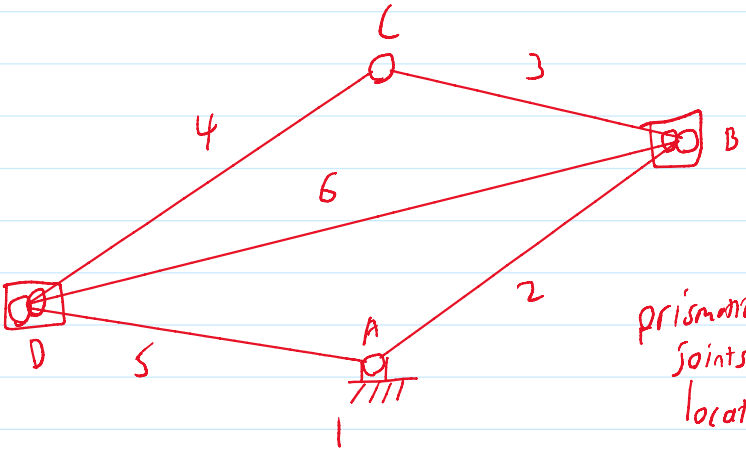
EXTRA CREDIT

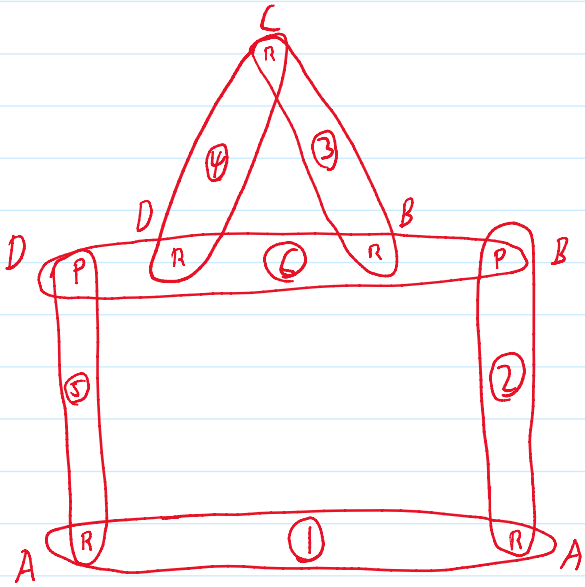
Provide a drawing of the Peaucellier mechanism. Diagram its topology and analyze its mobility.

$3(6-1) - 2(7) - 0$

$15 - 14 = 1$ Mobility







prismatic and revolute joints at same location

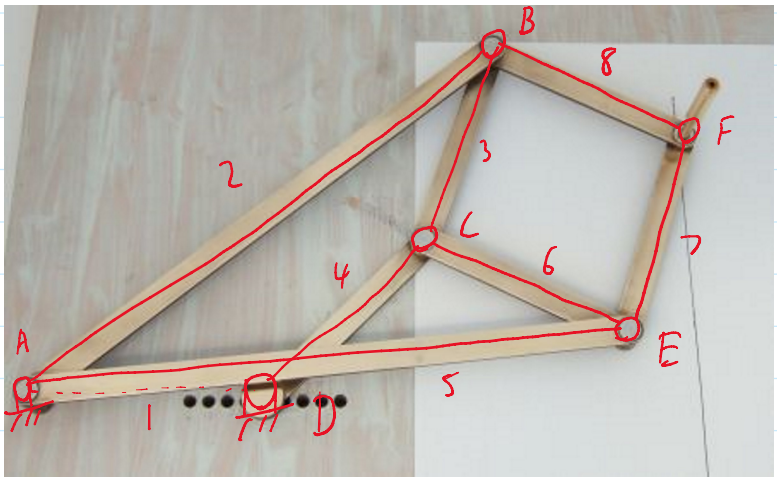
$nL = 6$

$nJ_1 = 7$

$nJ_2 = 0$

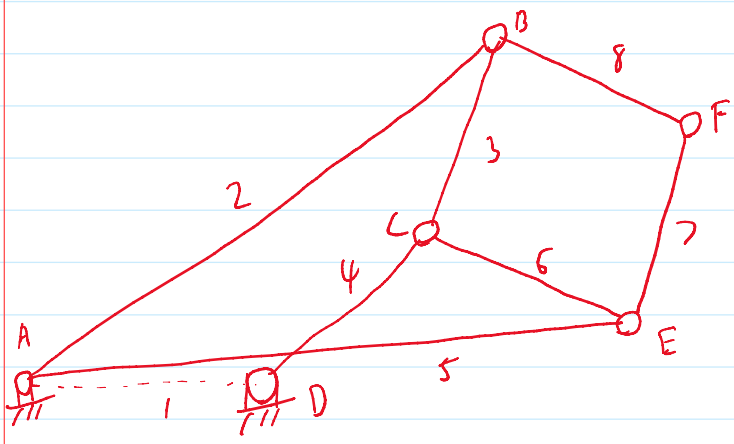
EXTRA CREDIT

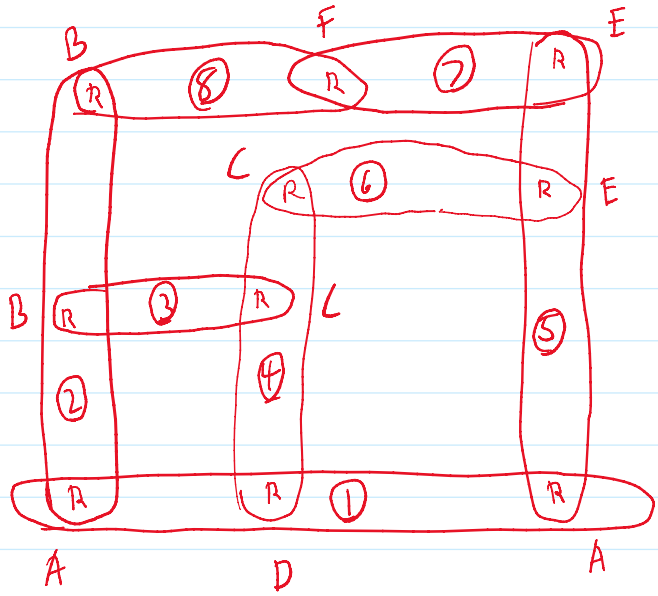
EXTRA CREDIT



5) Identify the number of links (nL), 1 DOF joints (nJ_1), 2 DOF joints (nJ_2) and mobility (M).

nL 8 nJ_1 10 nJ_2 0 M 1





$M = 3(8-1) - 2(10) = 21 - 20 = 1$

nL = 8 Mobility of 1

$nJ_1 = 10$ $nJ_2 = 0$

ME 481 - H02 **Name James Hampson**

1) Download https://www.mne.psu.edu/sommer/me481/h02.docx

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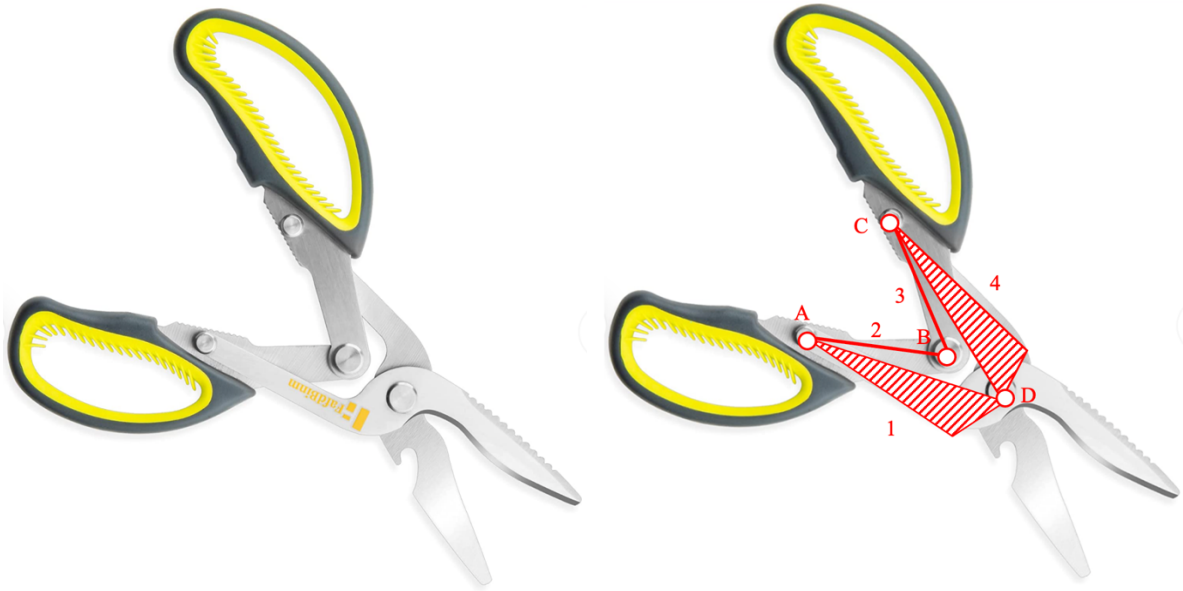
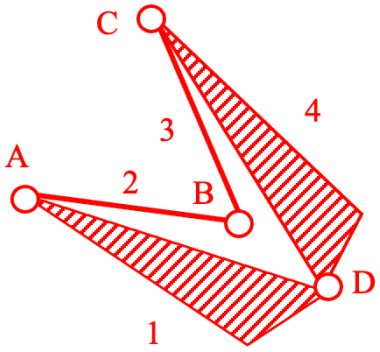
3) Provide a name and brief description of the purpose for your mechanism.

Double leverage kitchen scissors – Used for cutting with reduced resistance.

4) Use the MS-Word drawing toolbar or other drawing tools to draw the kinematic skeletal diagram for your mechanism directly on top of your image. Additionally, copy the skeletal diagram and past it onto a blank area of this this MS-Word file. Clearly label the links and joints. Number the links using 1 for the ground link, and letter the joints A, B, C, etc.





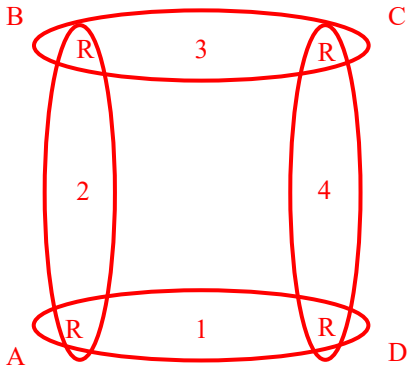
ME 481 - H02 **Name James Hampson**

5) Identify the number of links (nL), 1 DOF joints (nJ_1), 2 DOF joints (nJ_2) and mobility (M).

nL = 4 $nJ_1 = 4$ $nJ_2 = 0$ M = 1

$M = 3(4 - 1) - 2(4) = 1$

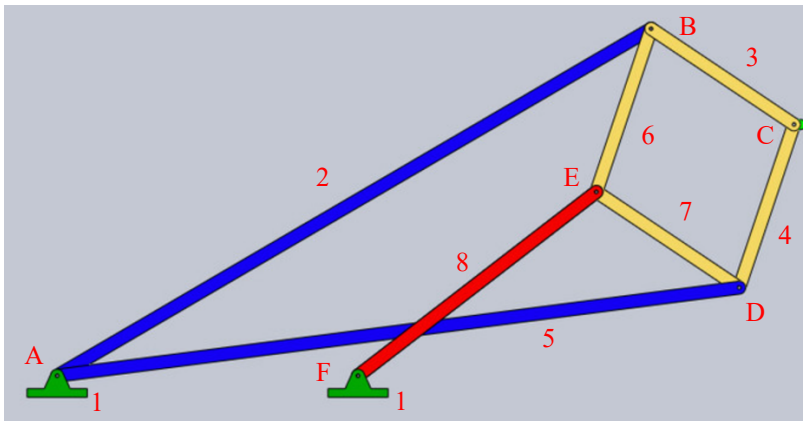
6) Diagram the topology of your mechanism.



7) Submit PDF copy via Canvas.

EXTRA CREDIT

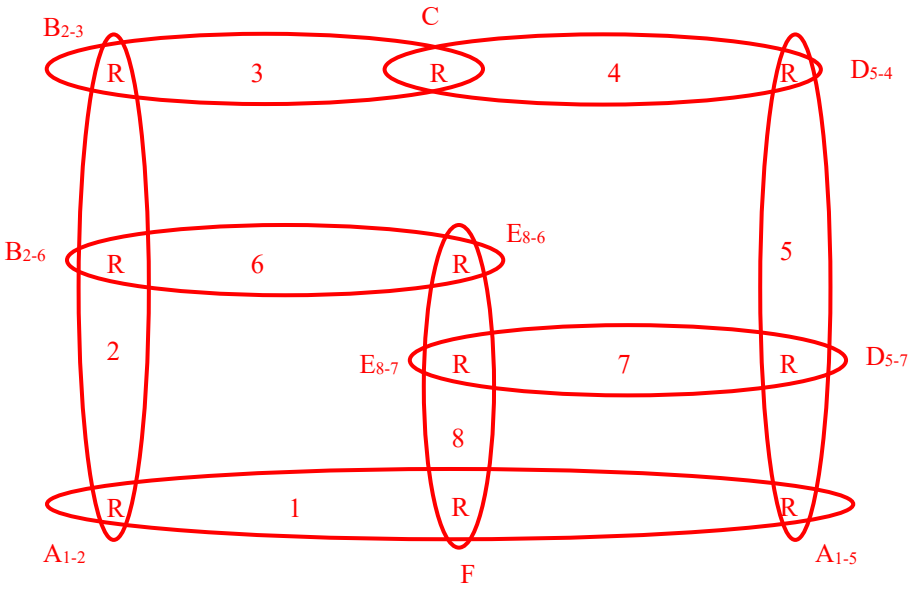
Provide a drawing of the Peaucellier mechanism. Diagram its topology and analyze its mobility.



nL = 8 $nJ_1 = 10$ $nJ_2 = 0$ M = 1

$M = 3(8 - 1) - 2(10) = 1$

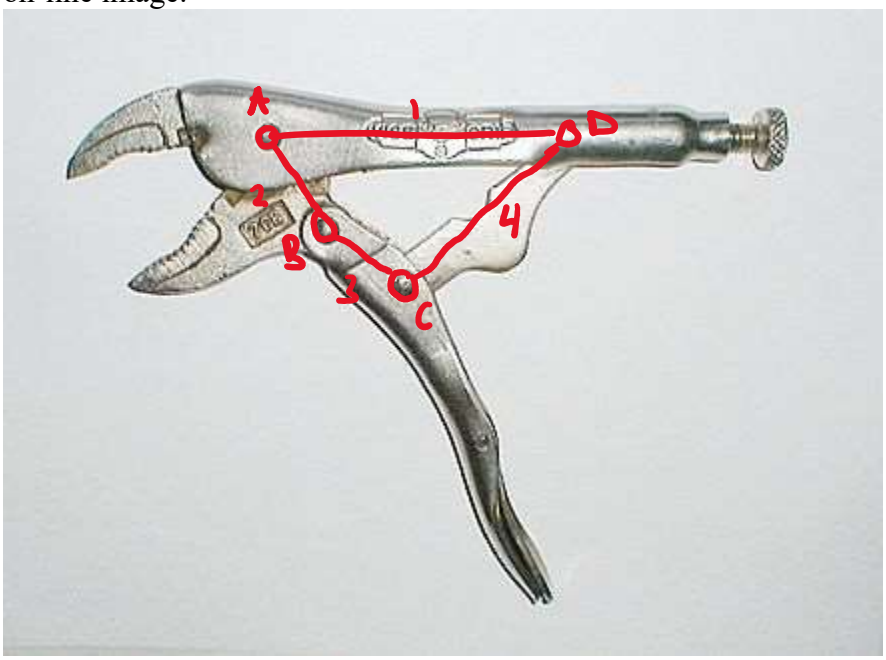
ME 481 - H02 **Name James Hampson**

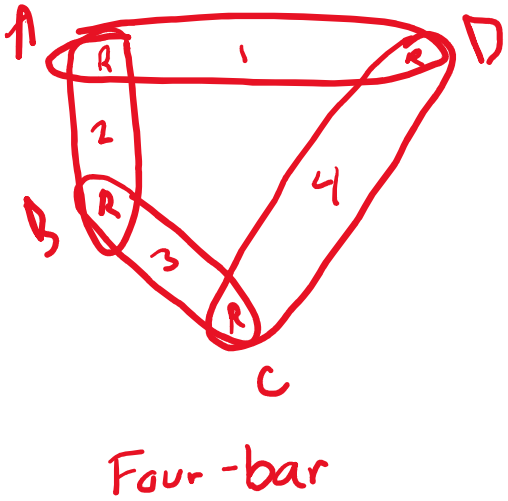


ME 481 - H02 **Name** Meredith Heh

1) Download https://www.mne.psu.edu/sommer/me481/h02.docx

2) Obtain a digital image of a **planar** linkage mechanism, and paste it into this MS-Word document. You may take a digital photo, scan a hardcopy photograph or drawing, or obtain an on-line image.





3) Provide a name and brief description of the purpose for your mechanism.

These locking pliers are used to grip objects. They can loosen and turn things that are difficult to move.

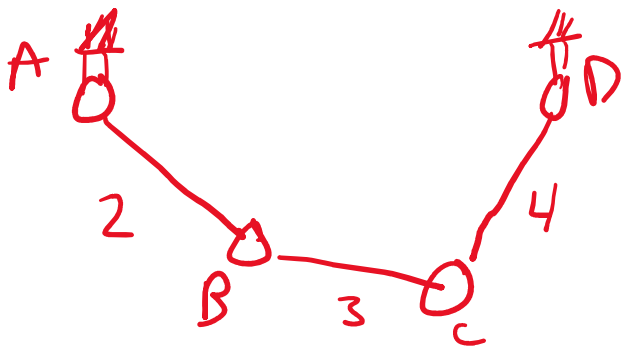
4) Use the MS-Word drawing toolbar or other drawing tools to draw the kinematic skeletal diagram for your mechanism directly on top of your image. Additionally, copy the skeletal diagram and past it onto a blank area of this this MS-Word file. Clearly label the links and joints. Number the links using 1 for the ground link, and letter the joints A, B, C, etc.

5) Identify the number of links (nL), 1 DOF joints (nJ_1), 2 DOF joints (nJ_2) and mobility (M).

nL 4 nJ_1 4 nJ_2 0 M 1

$M = 3(3) - 2(4) = 1$

6) Diagram the topology of your mechanism.



7) Submit PDF copy via Canvas.

EXTRA CREDIT
Provide a drawing of the Peaucellier mechanism. Diagram its topology and analyze its mobility.

ME 481 - H02 Name Paul Kerner

1) Download https://www.mne.psu.edu/sommer/me481/h02.docx

2) Obtain a digital image of a **planar** linkage mechanism, and paste it into this MS-Word document. You may take a digital photo, scan a hardcopy photograph or drawing, or obtain an on-line image.

3) Provide a name and brief description of the purpose for your mechanism.

These are vice-grip pliers which lock when fully closed.

4) Use the MS-Word drawing toolbar or other drawing tools to draw the kinematic skeletal diagram for your mechanism directly on top of your image. Additionally, copy the skeletal diagram and past it onto a blank area of this this MS-Word file. Clearly label the links and joints. Number the links using 1 for the ground link, and letter the joints A, B, C, etc.

5) Identify the number of links (nL), 1 DOF joints (nJ_1), 2 DOF joints (nJ_2) and mobility (M).

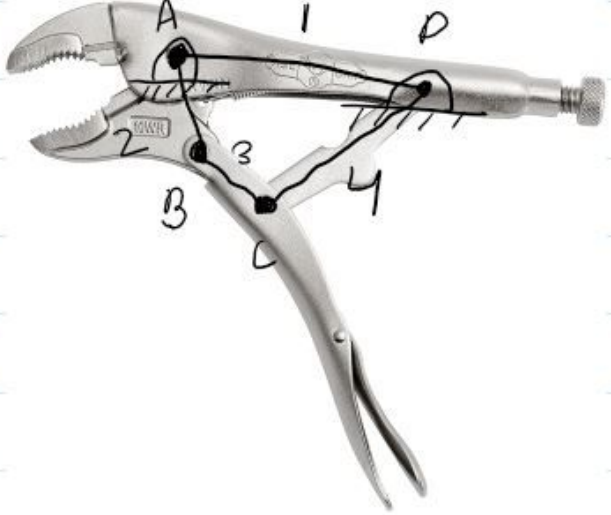
nL 4 nJ_1 4 nJ_2 0 M 1

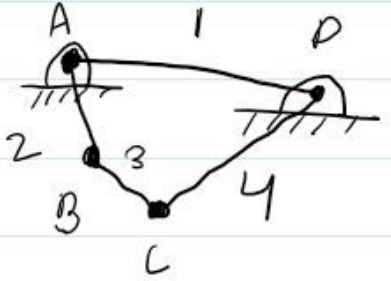
6) Diagram the topology of your mechanism.

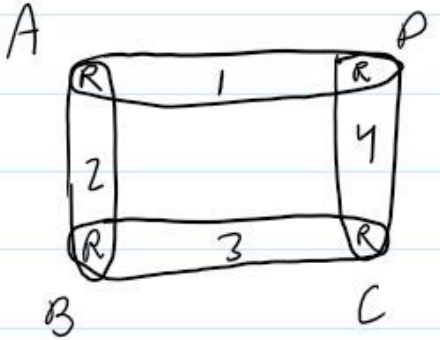
$M = 3(4-1) - 2(4)$

$M = 1$

7) Submit PDF copy via Canvas.

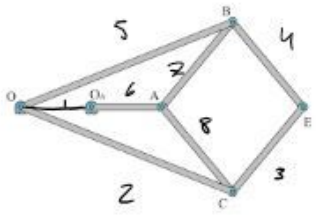






EXTRA CREDIT

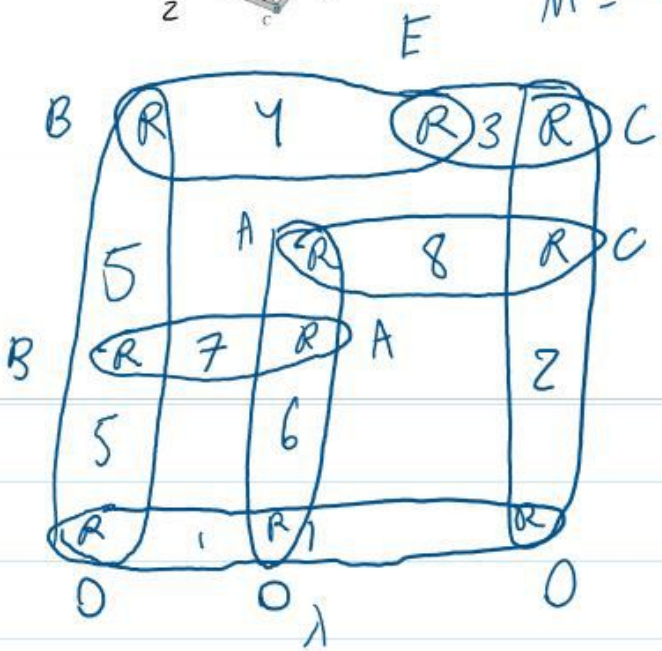
Provide a drawing of the Peaucellier mechanism. Diagram its topology and analyze its mobility.



$M = 3(nL-1) - 2nJ1 - nJ2$

$= 3(7) - 2(10) =$

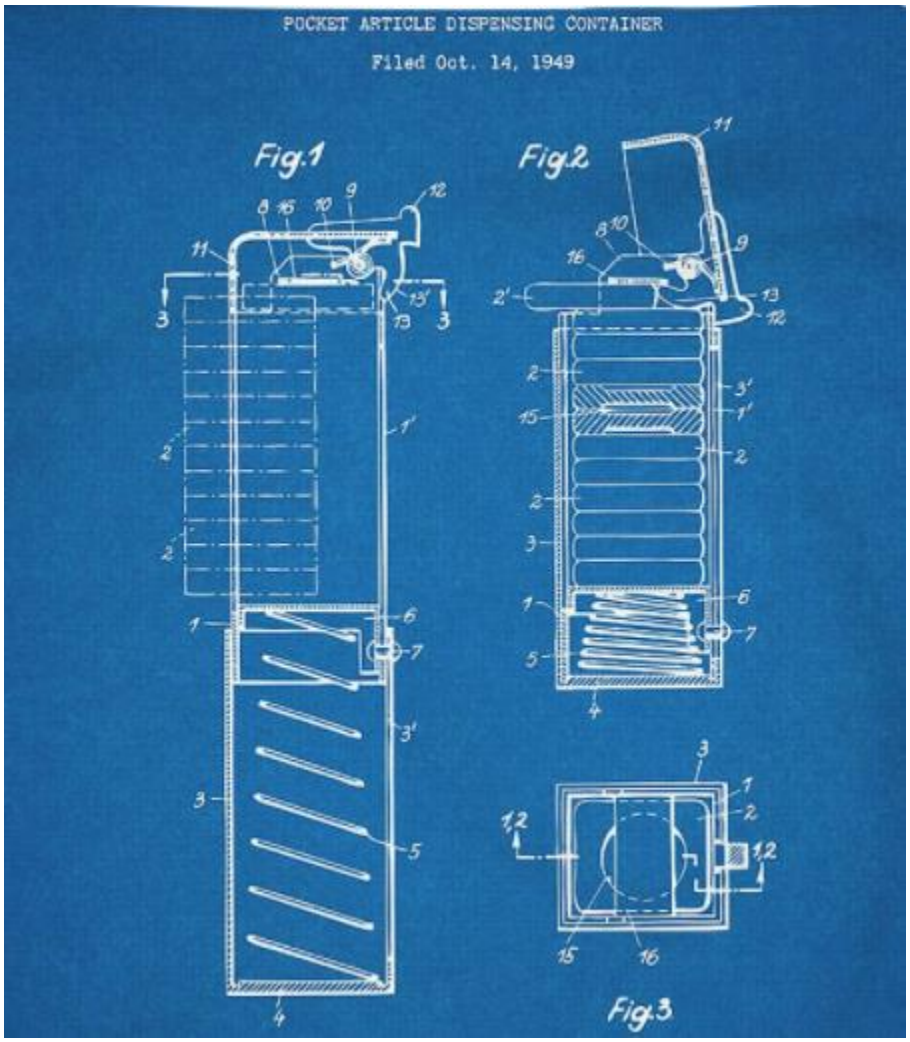
$M = 21 - 20 = \boxed{1 = M}$



ME 481 - H02 **Name Lindsay Levatino**

1) Download https://www.mne.psu.edu/sommer/me481/h02.docx

2) Obtain a digital image of a **planar** linkage mechanism, and paste it into this MS-Word document. You may take a digital photo, scan a hardcopy photograph or drawing, or obtain an on-line image.



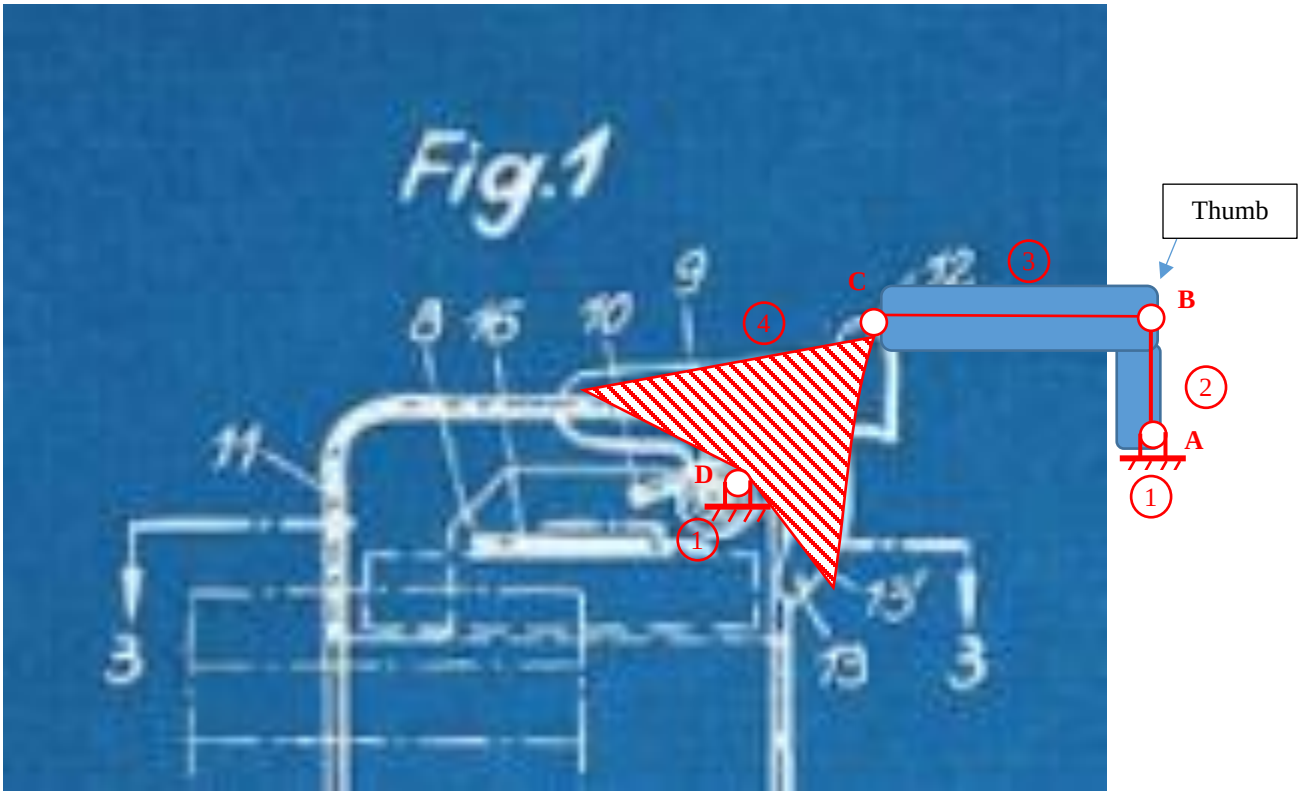
https://pixels.com/featured/1952-pez-candy-dispenser-blueprint-patent-print-greg-edwards.html?product=fleece-blanket&blanketType=blanket-sherpa-50-60

3) Provide a name and brief description of the purpose for your mechanism.

The mechanism is a PEZ dispenser, which is used to hold candy and push out individual pieces when the "head" of the dispenser is pulled back.

ME 481 - H02 **Name Lindsay Levatino**

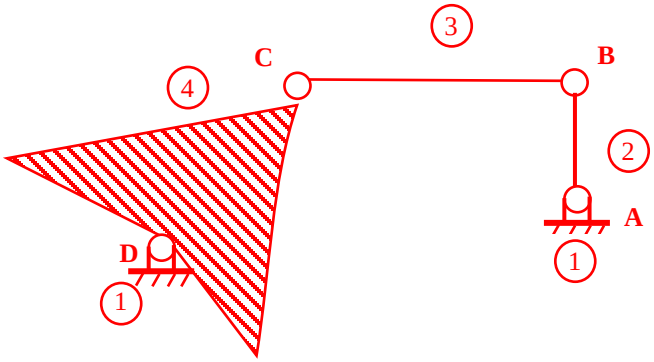
4) Use the MS-Word drawing toolbar or other drawing tools to draw the kinematic skeletal diagram for your mechanism directly on top of your image. Additionally, copy the skeletal diagram and past it onto a blank area of this this MS-Word file. Clearly label the links and joints. Number the links using 1 for the ground link, and letter the joints A, B, C, etc.

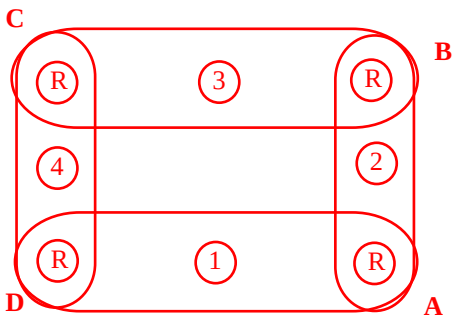


5) Identify the number of links (nL), 1 DOF joints (nJ_1), 2 DOF joints (nJ_2) and mobility (M).

nL 4 nJ_1 4 nJ_2 0 M 1

6) Diagram the topology of your mechanism.



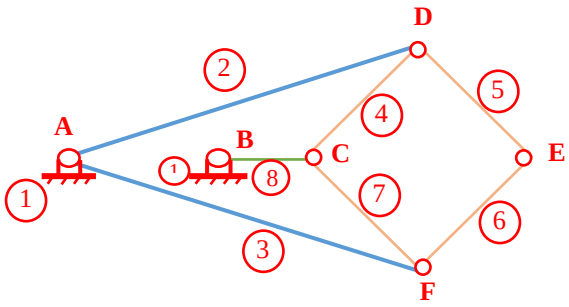


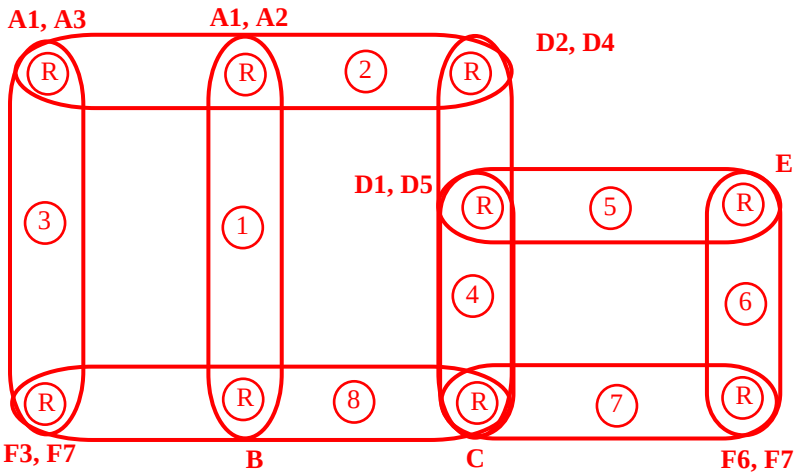
7) Submit PDF copy via Canvas.

ME 481 - H02 **Name Lindsay Levatino**

EXTRA CREDIT

Provide a drawing of the Peaucellier mechanism. Diagram its topology and analyze its mobility.





nL 8 nJ_1 6 nJ_2 0 M 9

ME 481 - H02 **Name** Stephen Maransky

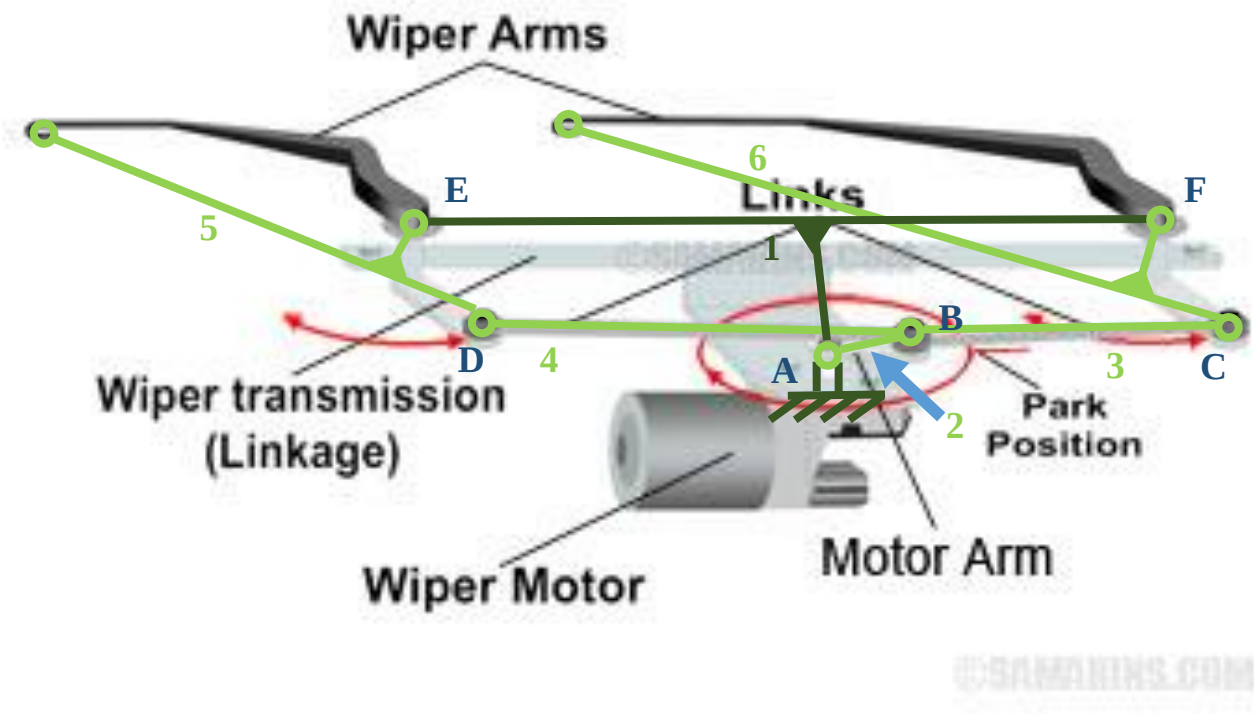
1) Download https://www.mne.psu.edu/sommer/me481/h02.docx

2) Obtain a digital image of a **planar** linkage mechanism, and paste it into this MS-Word document. You may take a digital photo, scan a hardcopy photograph or drawing, or obtain an on-line image.

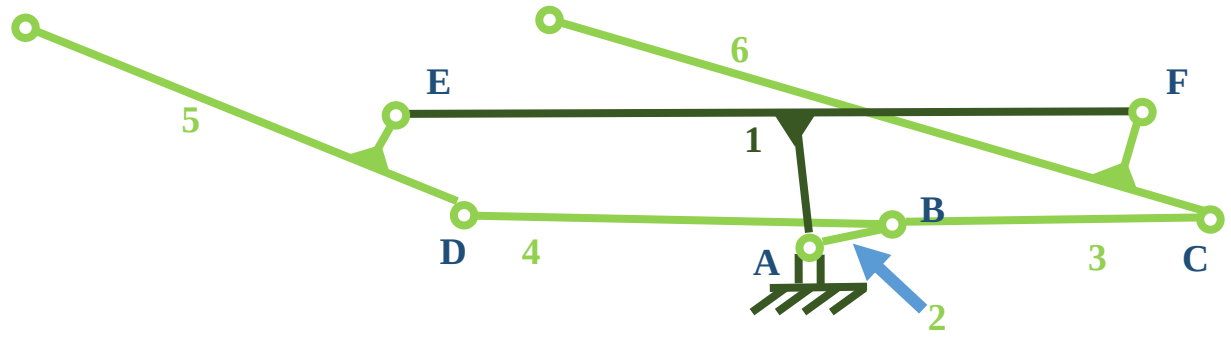
3) Provide a name and brief description of the purpose for your mechanism.

Windshield Wiper Mechanism – converts rotary motion of motor into back and forth motion of windshield wipers

4) Use the MS-Word drawing toolbar or other drawing tools to draw the kinematic skeletal diagram for your mechanism directly on top of your image. Additionally, copy the skeletal diagram and paste it onto a blank area of this this MS-Word file. Clearly label the links and joints. Number the links using 1 for the ground link, and letter the joints A, B, C, etc.



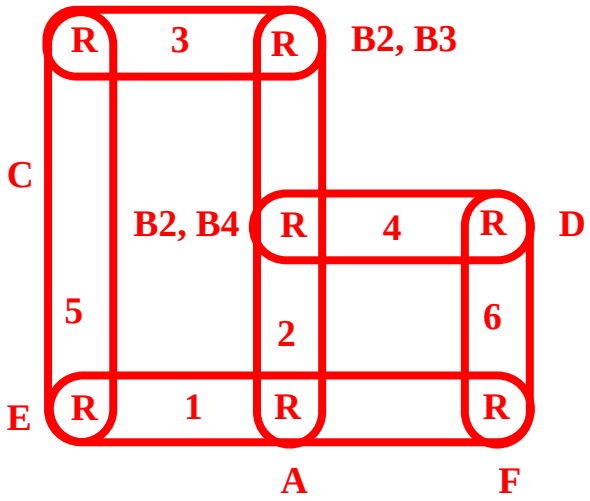
Source: Samarins.com/glossary/wiper-motor.html



5) Identify the number of links (nL), 1 DOF joints (nJ_1), 2 DOF joints (nJ_2) and mobility (M).

nL: **6** nJ_1: **7** nJ_2: **0** M: **1**

6) Diagram the topology of your mechanism.

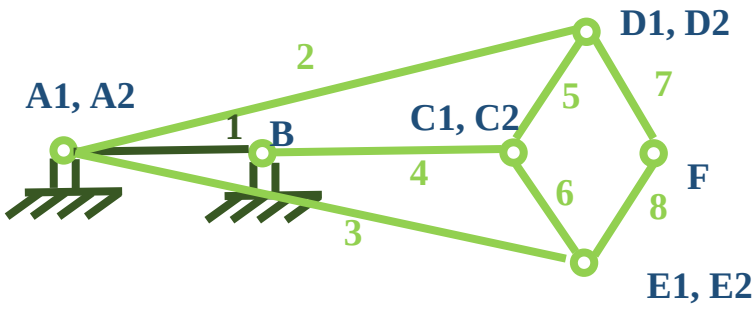


7) Submit PDF copy via Canvas.

ME 481 - H02 **Name** Stephen Maransky

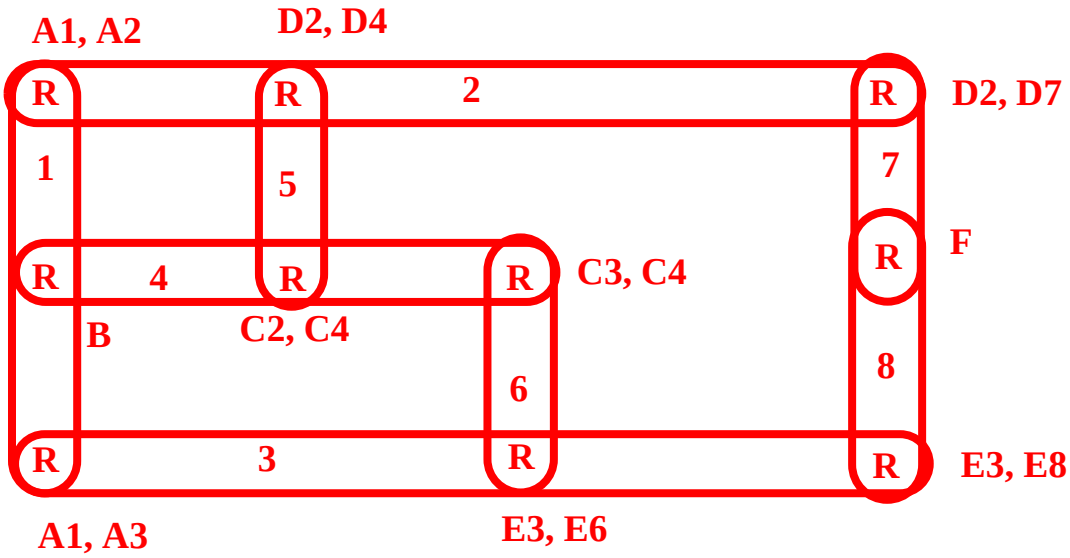
EXTRA CREDIT

Provide a drawing of the Peaucellier mechanism. Diagram its topology and analyze its mobility.



nL: **8** nJ_1: **10** nJ_2: **0** M: **1**

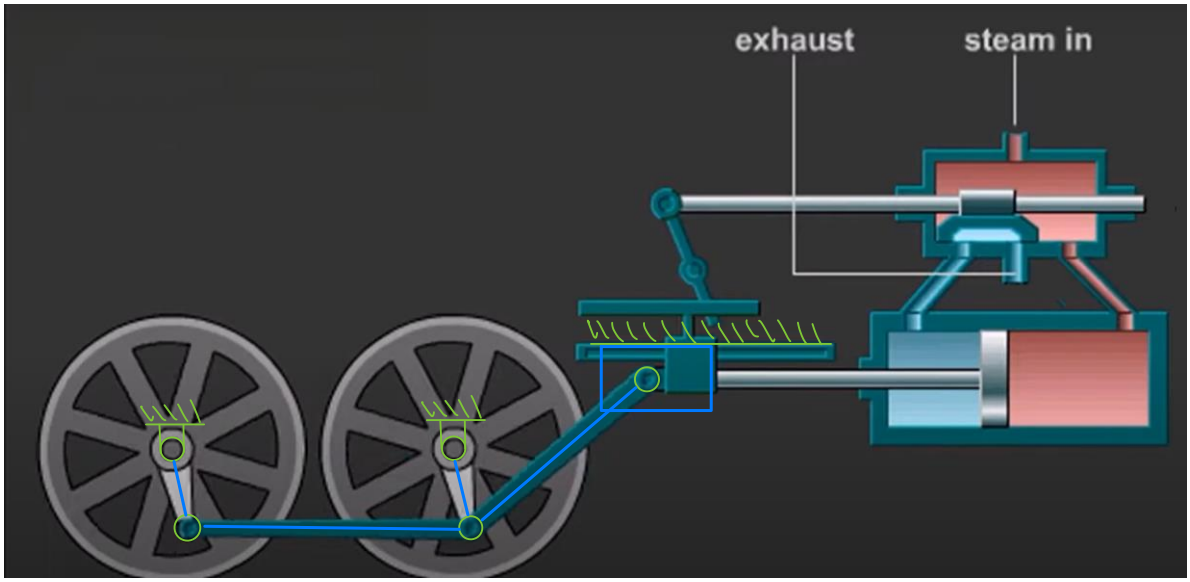
Peaucellier mechanism has one degree of freedom. For joint F, this is a linear degree of freedom.



ME 481 - H02 **Name** Zachary Morgen

1) Download https://www.mne.psu.edu/sommer/me481/h02.docx

2) Obtain a digital image of a **planar** linkage mechanism, and paste it into this MS-Word document. You may take a digital photo, scan a hardcopy photograph or drawing, or obtain an on-line image.



Source: https://www.youtube.com/watch?v=4u7M4ky6sI4

3) Provide a name and brief description of the purpose for your mechanism.

This is known as the "Steam Locomotive Mechanism." As you might have guessed, the purpose of this mechanism is to convert linear motion of a piston into rotation of the wheels to move the train.

4) Use the MS-Word drawing toolbar or other drawing tools to draw the kinematic skeletal diagram for your mechanism directly on top of your image. Additionally, copy the skeletal diagram and past it onto a blank area of this this MS-Word file. Clearly label the links and joints. Number the links using 1 for the ground link, and letter the joints A, B, C, etc.

5) Identify the number of links (nL), 1 DOF joints (nJ_1), 2 DOF joints (nJ_2) and mobility (M).

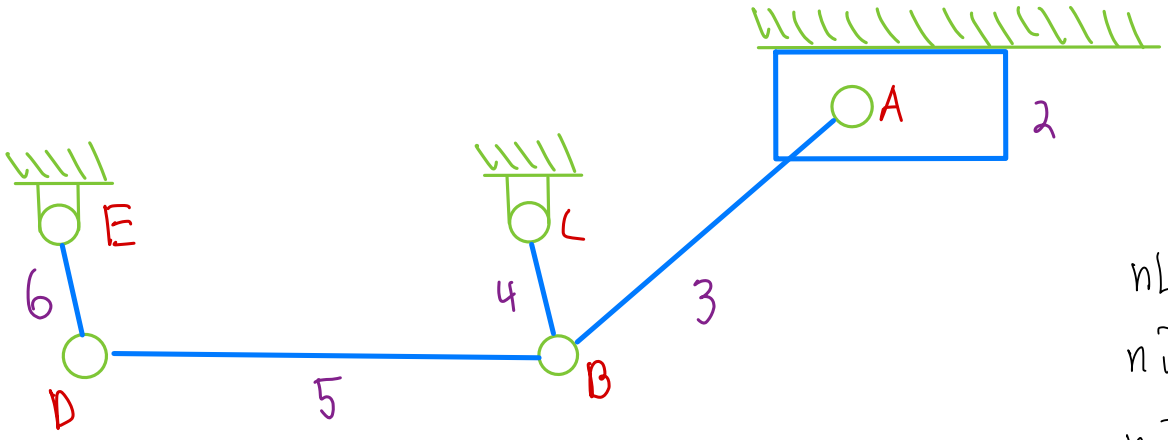
nL 6 nJ_1 7 nJ_2 0 M 1

6) Diagram the topology of your mechanism.

7) Submit PDF copy via Canvas.

EXTRA CREDIT
Provide a drawing of the Peaucellier mechanism. Diagram its topology and analyze its mobility

4) Skeletal Diagram



$nL = 6$

$nJ_1 = 7$

$nJ_2 = 0$

• Mobility

$nL = 6$, $nJ_1 = 7$, $nJ_2 = 0$

$M = 3(nL-1) - 2nJ_1 - nJ_2$

$= 3(6-1) - 2(7) - 0$

$\therefore$ $M = 14$

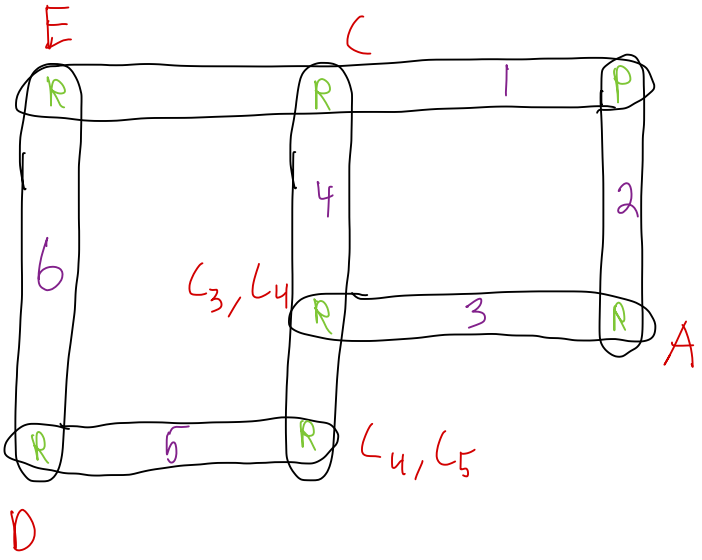
$M = 3(nL-1) - 2J_1 - nJ_2$

$= 3(6-1) - 2(7) - 0$

$\Rightarrow$ $M = 15 - 14$

$\therefore$ $M = 2$

6) Topology Diagram



ME 481 - H02 **Name Brian Plunkett**

1) Download https://www.mne.psu.edu/sommer/me481/h02.docx

2) Obtain a digital image of a **planar** linkage mechanism, and paste it into this MS-Word document. You may take a digital photo, scan a hardcopy photograph or drawing, or obtain an on-line image.

3) Provide a name and brief description of the purpose for your mechanism.

The name of the mechanism is a foldable dinner table, and the purpose of this mechanism is to allow Link 2 to fold down for the item to be stored in a thin area.

4) Use the MS-Word drawing toolbar or other drawing tools to draw the kinematic skeletal diagram for your mechanism directly on top of your image. Additionally, copy the skeletal diagram and past it onto a blank area of this this MS-Word file. Clearly label the links and joints. Number the links using 1 for the ground link, and letter the joints A, B, C, etc.

5) Identify the number of links (nL), 1 DOF joints (nJ_1), 2 DOF joints (nJ_2) and mobility (M).

nL ___3_____ nJ_1 ___2_____ nJ_2 ____1_____ M ____1_____

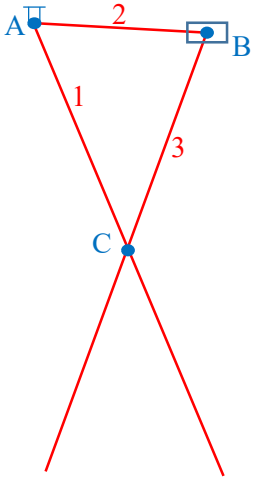
6) Diagram the topology of your mechanism.

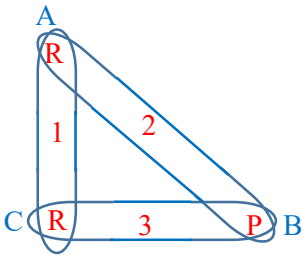
7) Submit PDF copy via Canvas.

A

EXTRA CREDIT

Provide a drawing of the Peaucellier mechanism. Diagram its topology and analyze its mobility.





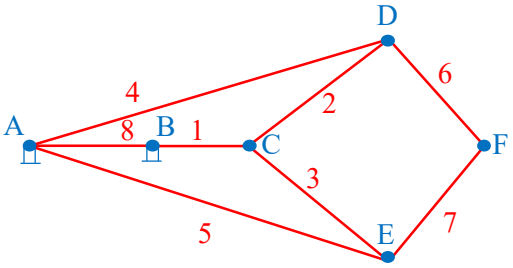
M = 3(nL-1) - 2 nJ1 - nJ2
M = 3(3-1) - 2 (2) – 1
M = 6-5
M = 1

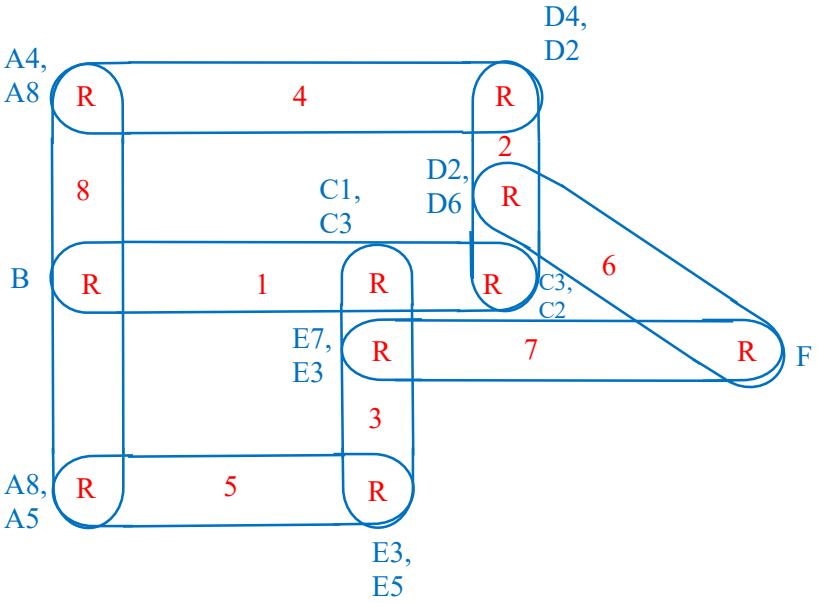
ME 481 - H02 **Name Brian Plunkett**

Extra Credit:

nL ___8_____ nJ_1 ___10_____ nJ_2 ____0_____ M ____1_____

M = 3(nL-1) - 2 nJ1 - nJ2
M = 3 (8 -1) – 2 (10) – 0
M = 1





ME 481 - H02 **Name _Ethan Rothermel_**

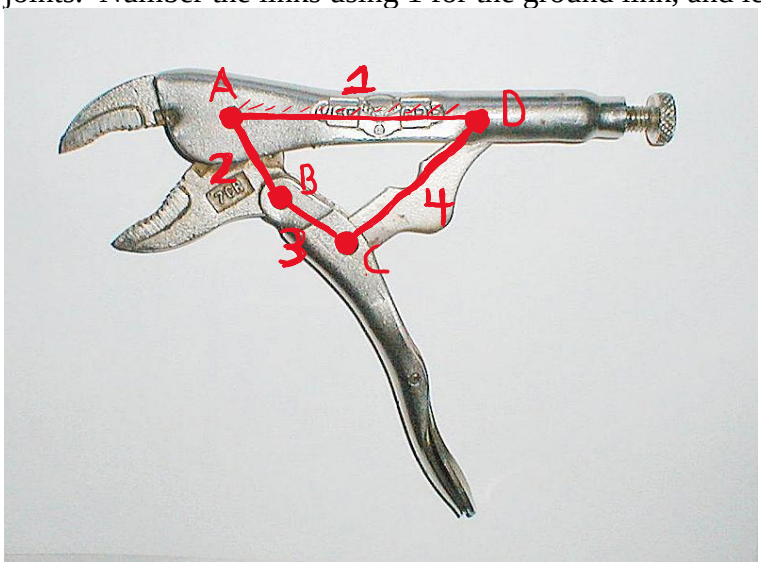
1) Download https://www.mne.psu.edu/sommer/me481/h02.docx

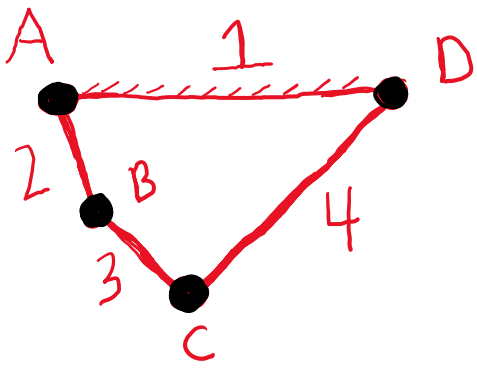
2) Obtain a digital image of a **planar** linkage mechanism, and paste it into this MS-Word document. You may take a digital photo, scan a hardcopy photograph or drawing, or obtain an on-line image.

3) Provide a name and brief description of the purpose for your mechanism.

My mechanism of choice is the locking pliers, which I used many times as a kid helping to pull out nails from boards when assisting my dad in our workshop. Locking pliers are particularly useful because they can be locked into place on an object, in order to apply a force on another object. For example, they can be locked into place around a nut, and act as a wrench to unscrew a nut-bolt fastener.

4) Use the MS-Word drawing toolbar or other drawing tools to draw the kinematic skeletal diagram for your mechanism directly on top of your image. Additionally, copy the skeletal diagram and past it onto a blank area of this this MS-Word file. Clearly label the links and joints. Number the links using 1 for the ground link, and letter the joints A, B, C, etc.



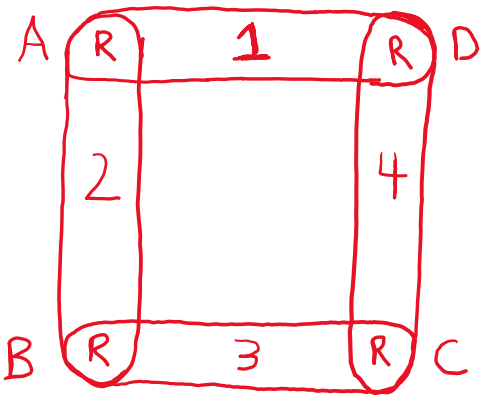


ME 481 - H02 **Name _Ethan Rothermel_**

5) Identify the number of links (nL), 1 DOF joints (nJ_1), 2 DOF joints (nJ_2) and mobility (M).

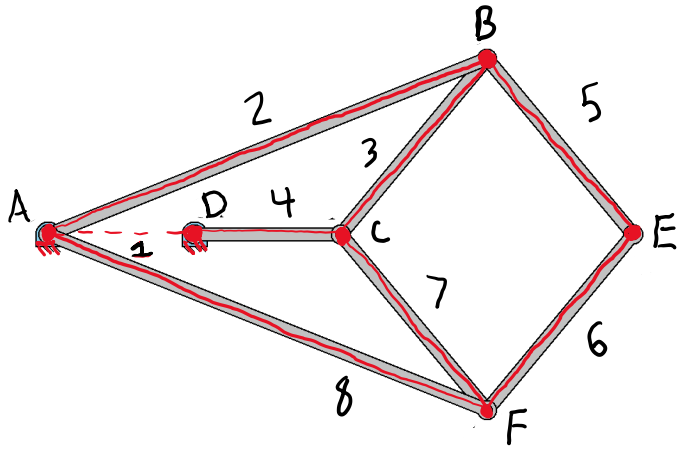
nL __4_____ nJ_1 _____4_____ nJ_2 ____0_____ M ____1_____
M=3*(nL-1)-2*(nJ1)-(nJ2) = 3*(4-1)-2*(4)-0 =1

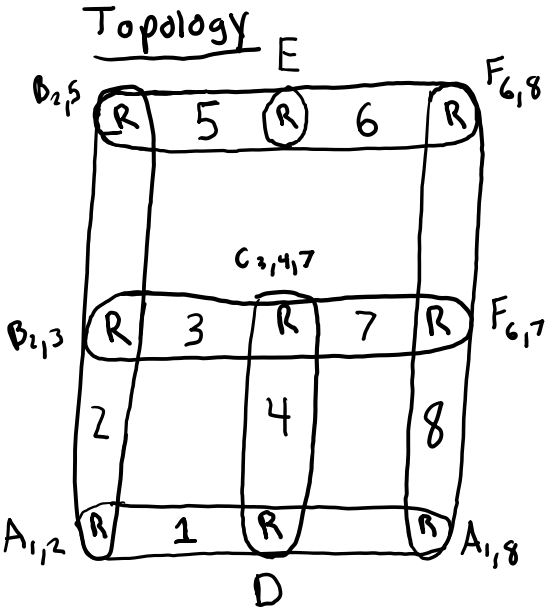
6) Diagram the topology of your mechanism.



7) Submit PDF copy via Canvas.

EXTRA CREDIT
Provide a drawing of the Peaucellier mechanism. Diagram its topology and analyze its mobility.





Mobility

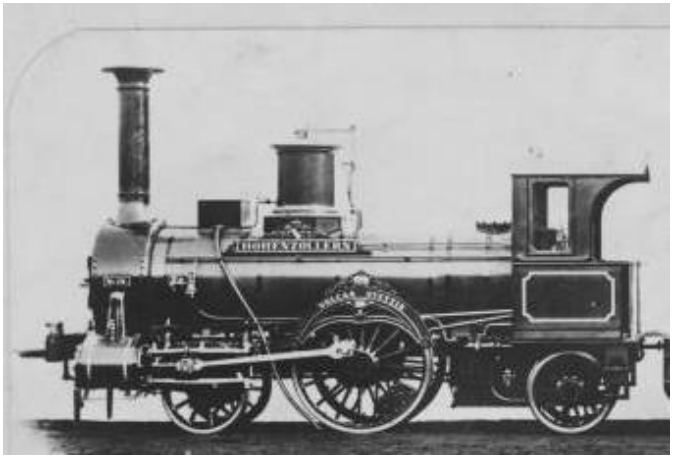
$n_L = 8 \quad N_{J_1} = 10$

$M = 3(8-1) - 2(10) - 0 = 1$

ME 481 - H02 **Name Ben Servey**

1) Download https://www.mne.psu.edu/sommer/me481/h02.docx

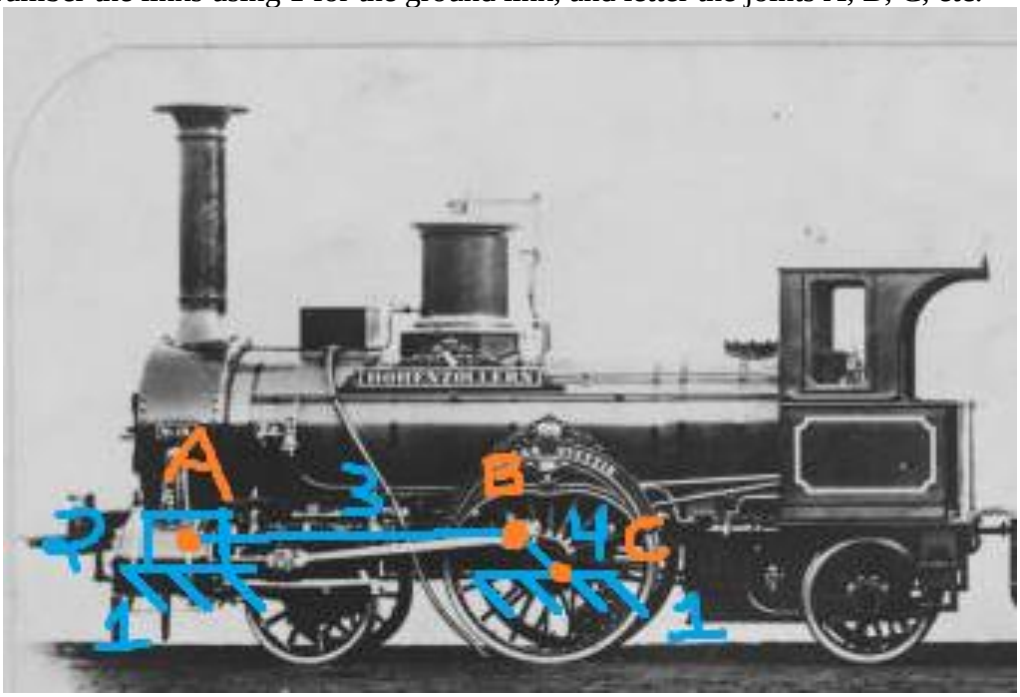
2) Obtain a digital image of a **planar** linkage mechanism, and paste it into this MS-Word document. You may take a digital photo, scan a hardcopy photograph or drawing, or obtain an on-line image.



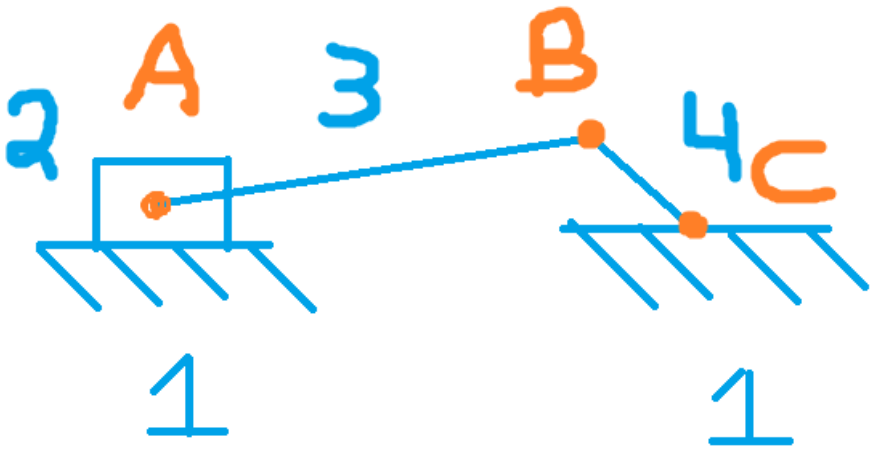
3) Provide a name and brief description of the purpose for your mechanism.

The mechanism is a inline slider crank. The purpose of the mechanism is to turn the linear motion of the steam piston into rotational motion to drive the wheels.

4) Use the MS-Word drawing toolbar or other drawing tools to draw the kinematic skeletal diagram for your mechanism directly on top of your image. Additionally, copy the skeletal diagram and past it onto a blank area of this this MS-Word file. Clearly label the links and joints. Number the links using 1 for the ground link, and letter the joints A, B, C, etc.



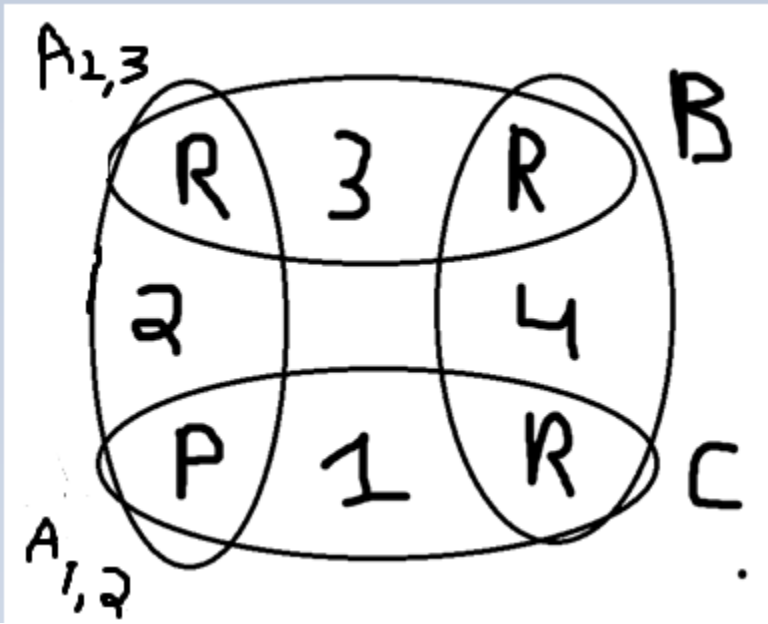
ME 481 - H02 **Name Ben Servey**



5) Identify the number of links (nL), 1 DOF joints (nJ_1), 2 DOF joints (nJ_2) and mobility (M).

nL:4 nJ_1: 4 (3 Revolute, 1 Prismatic) nJ_2: 0 M: 1

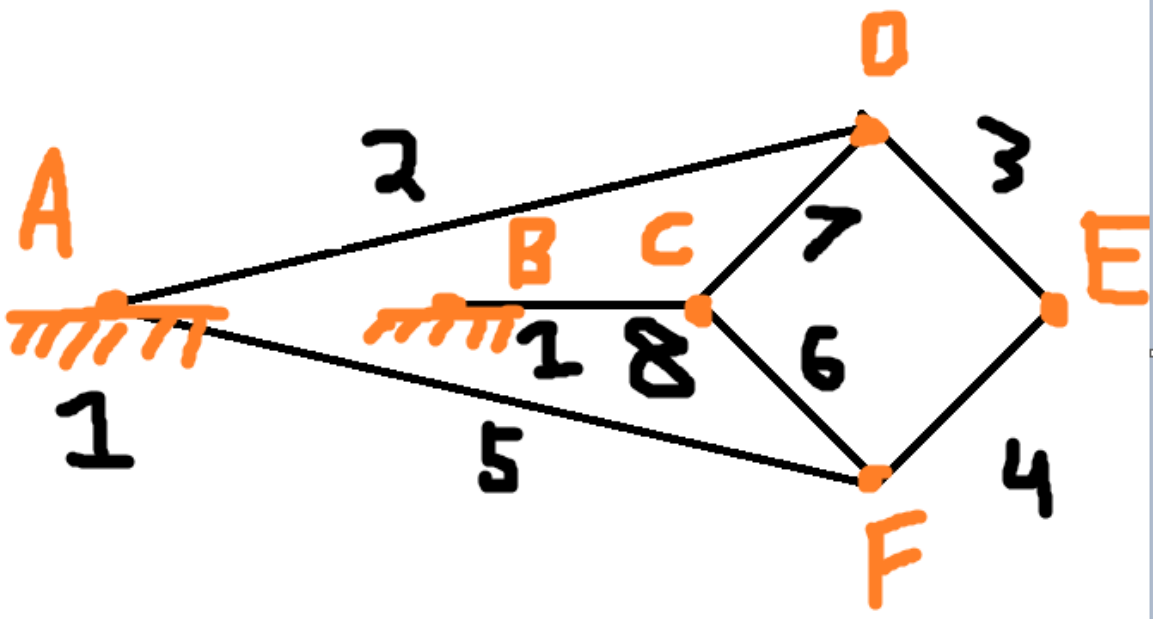
6) Diagram the topology of your mechanism.



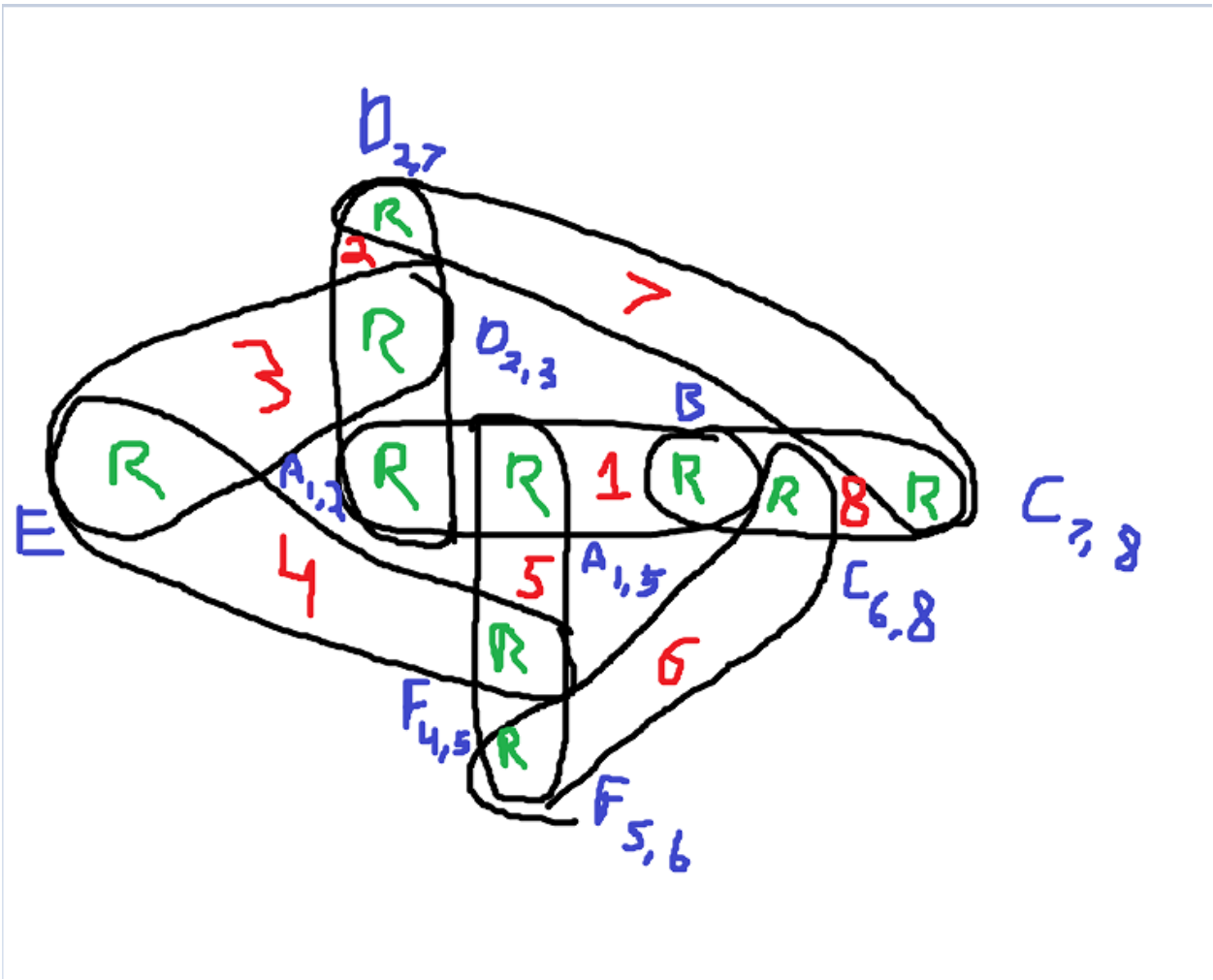
7) Submit PDF copy via Canvas.

EXTRA CREDIT
Provide a drawing of the Peaucellier mechanism. Diagram its topology and analyze its mobility.

ME 481 - H02 **Name Ben Servey**



ME 481 - H02 **Name Ben Servey**



nL:8 nJ_1: 10 (10 Revolute) nJ_2: 0 M: 1

3*(8-1)-2*(10)=21-20=1

ME 481 - H02 **Name __Michael Shulock_____**

1) Download https://www.mne.psu.edu/sommer/me481/h02.docx

2) Obtain a digital image of a **planar** linkage mechanism, and paste it into this MS-Word document. You may take a digital photo, scan a hardcopy photograph or drawing, or obtain an on-line image.

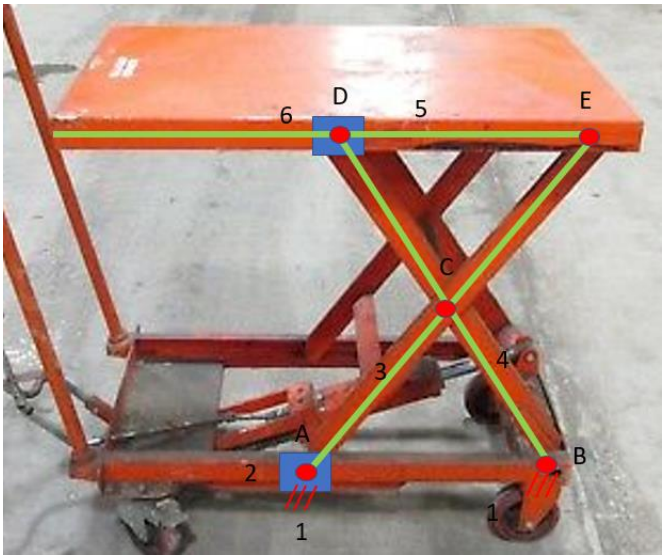
Only analyzing one side of the mechanism to keep it planar.

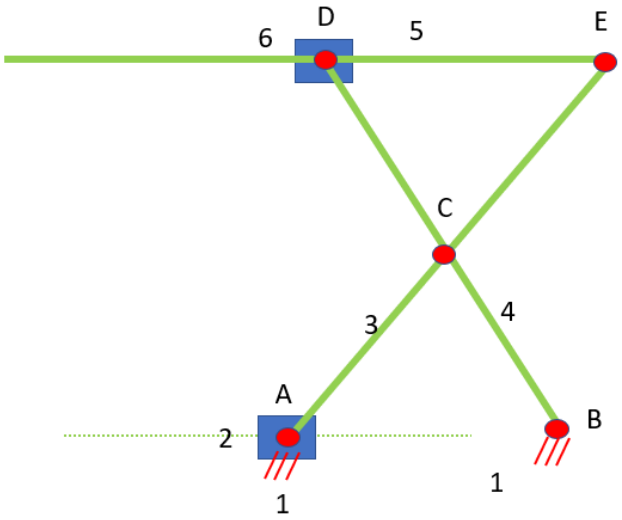
3) Provide a name and brief description of the purpose for your mechanism.

Scissor lift linkage: When paired with a linear actuator, they are used to create lift tables. Multiple scissor linkages can be used to make large vertical lifts.

4) Use the MS-Word drawing toolbar or other drawing tools to draw the kinematic skeletal diagram for your mechanism directly on top of your image. Additionally, copy the skeletal diagram and past it onto a blank area of this this MS-Word file. Clearly label the links and joints. Number the links using 1 for the ground link, and letter the joints A, B, C, etc.

ME 481 - H02 **Name __Michael Shulock_____**

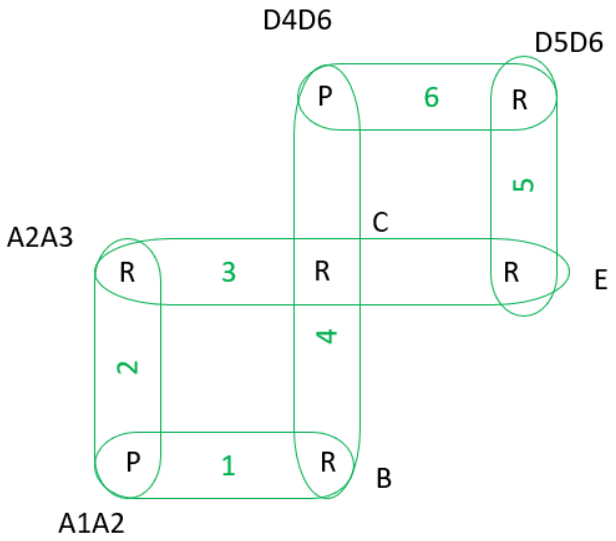




5) Identify the number of links (nL), 1 DOF joints (nJ_1), 2 DOF joints (nJ_2) and mobility (M).

nL ____6____ nJ_1 ____7 (5R,2P)__ nJ_2 _____0____ M ____1_____

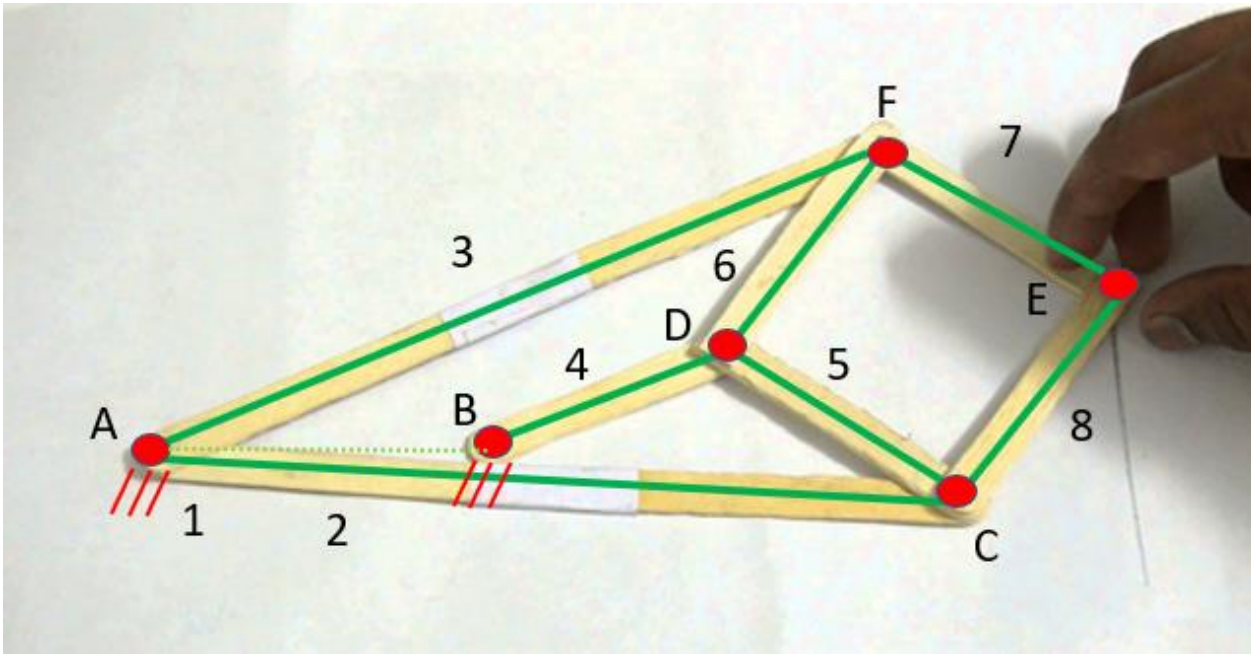
6) Diagram the topology of your mechanism.



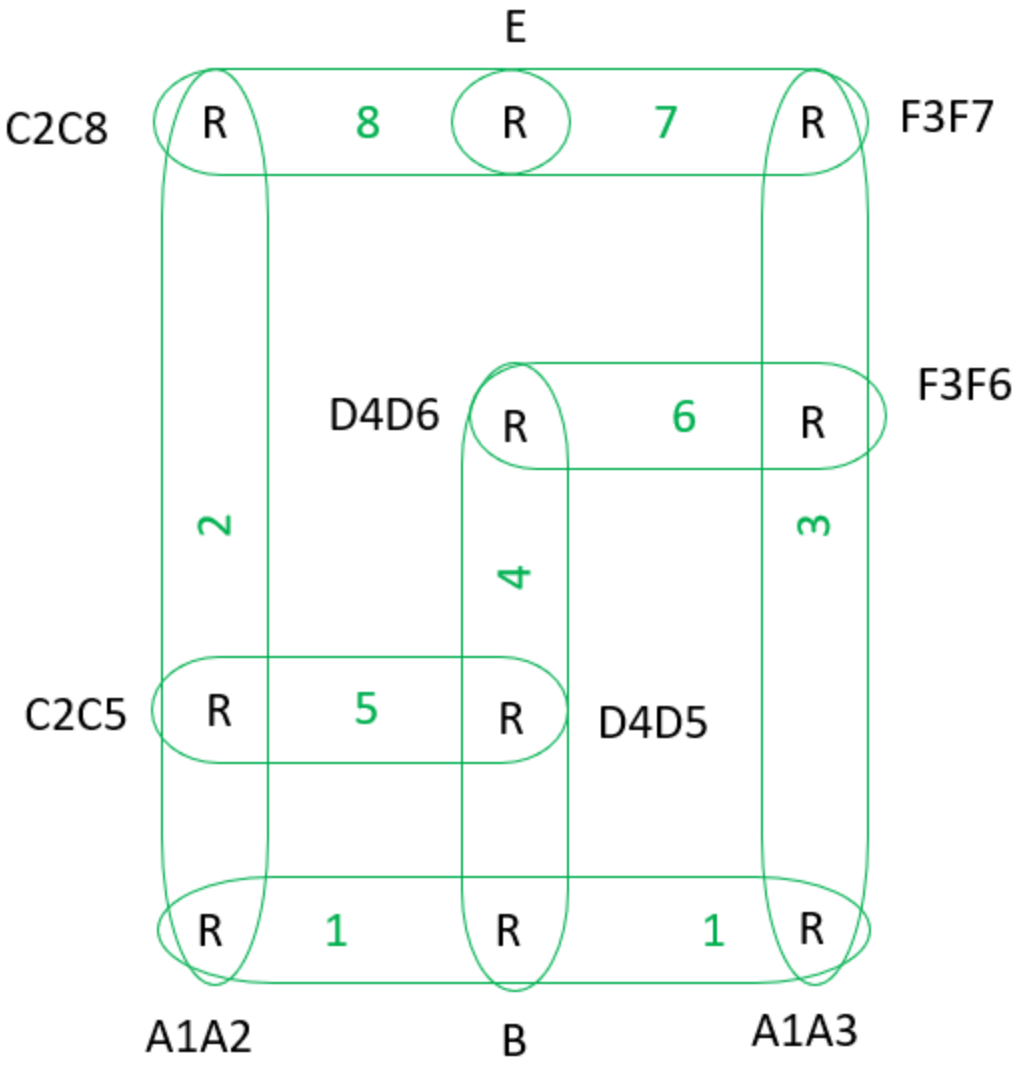
7) Submit PDF copy via Canvas.

EXTRA CREDIT

Provide a drawing of the Peaucellier mechanism. Diagram its topology and analyze its mobility.



ME 481 - H02 **Name __Michael Shulock_____**



nL ____8____ nJ_1 ____10_____ nJ_2 _____0____ M ____1_____

ME 481 - H02 **Name Tyler Smith**

1) Download https://www.mne.psu.edu/sommer/me481/h02.docx

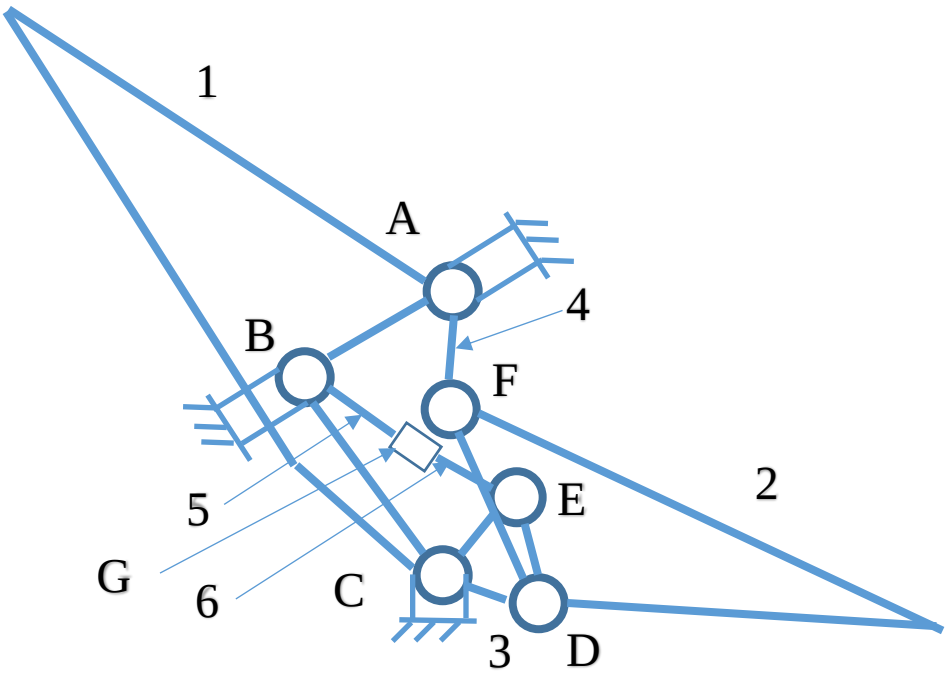
2) Obtain a digital image of a **planar** linkage mechanism, and paste it into this MS-Word document. You may take a digital photo, scan a hardcopy photograph or drawing, or obtain an on-line image.

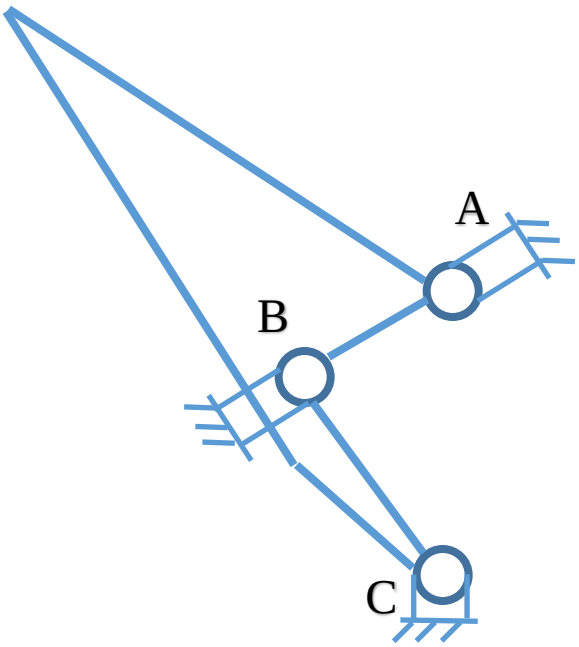
3) Provide a name and brief description of the purpose for your mechanism.

Rear Suspension Mechanism – purpose of the mechanism is to give the rear wheel 215mm of travel. The shock (prismatic joint) is utilized to dampen the forces experience by the rear wheel, and also control the "rebound" speed of the rear wheel back to resting position. Per the manufacture, "the overall goal with the suspension design was to create a linearly progressive leverage curve (picture a diagonal line) in order to maintain a consistent feel with enough ramp up to avoid going through all 215mm of travel too quickly". Another interesting aspect of this linkage system is link 3 (see page 3), has two positions for the shock to mount to, which effectively changes the geometry of the bike and the linkage.

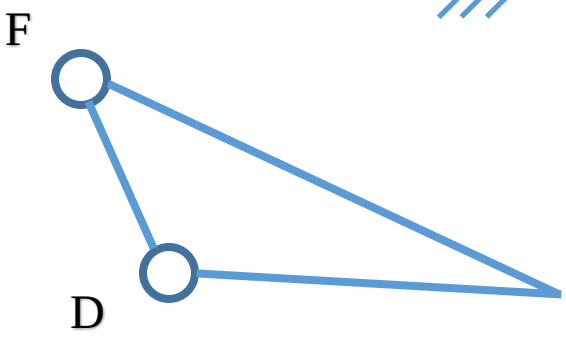
ME 481 - H02 **Name Tyler Smith**

4) Use the MS-Word drawing toolbar or other drawing tools to draw the kinematic skeletal diagram for your mechanism directly on top of your image. Additionally, copy the skeletal diagram and past it onto a blank area of this this MS-Word file. Clearly label the links and joints. Number the links using 1 for the ground link, and letter the joints A, B, C, etc.

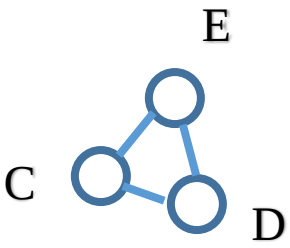




Link 1 – Front Triangle (Ternary)
3 Grounded Revolute Joints

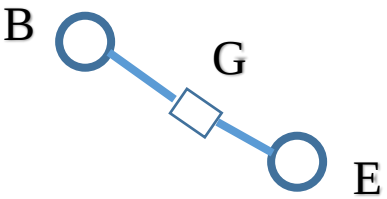


Link 2 – Rear Triangle (Binary – not including wheel)
2 Revolute Joints



Link 3 – Lower Pivot (Ternary)
3 Revolute Joints

Link 4 – Upper Pivot (Binary)
2 Revolute Joints



Link 5 & 6 – Shock
2 Revolute Joints and one prismatic

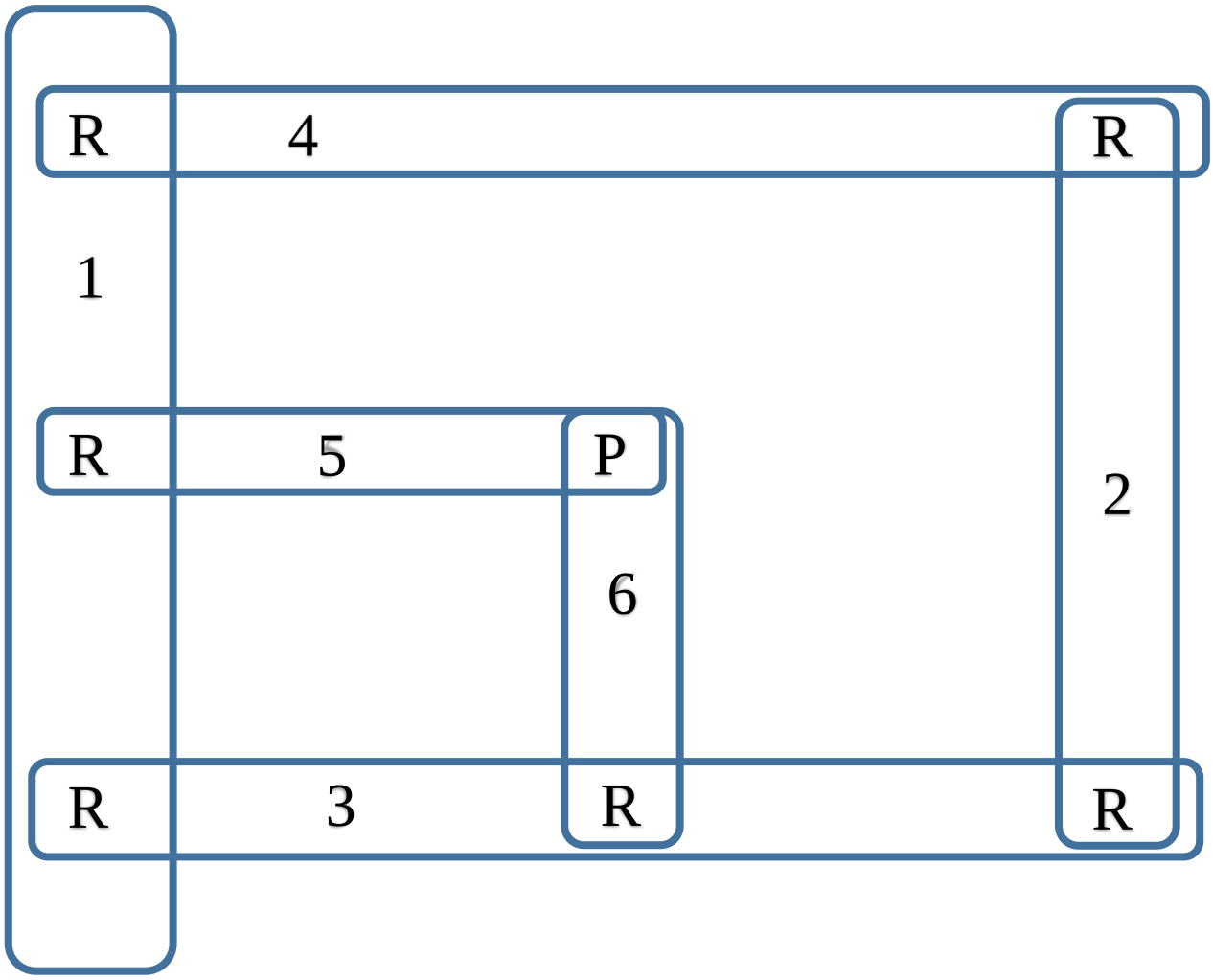
ME 481 - H02 **Name Tyler Smith**

5) Identify the number of links (nL), 1 DOF joints (nJ_1), 2 DOF joints (nJ_2) and mobility (M).

Nl: 6 nJ_1 : 7 (6R, 1P) nJ_2: 0 M: 1

$$M = 3(nL - 1) - 2(nJ1) - nJ2$$
$$M = 3(6 - 1) - 2(7) - 0$$
$$M = 1$$

6) Diagram the topology of your mechanism.

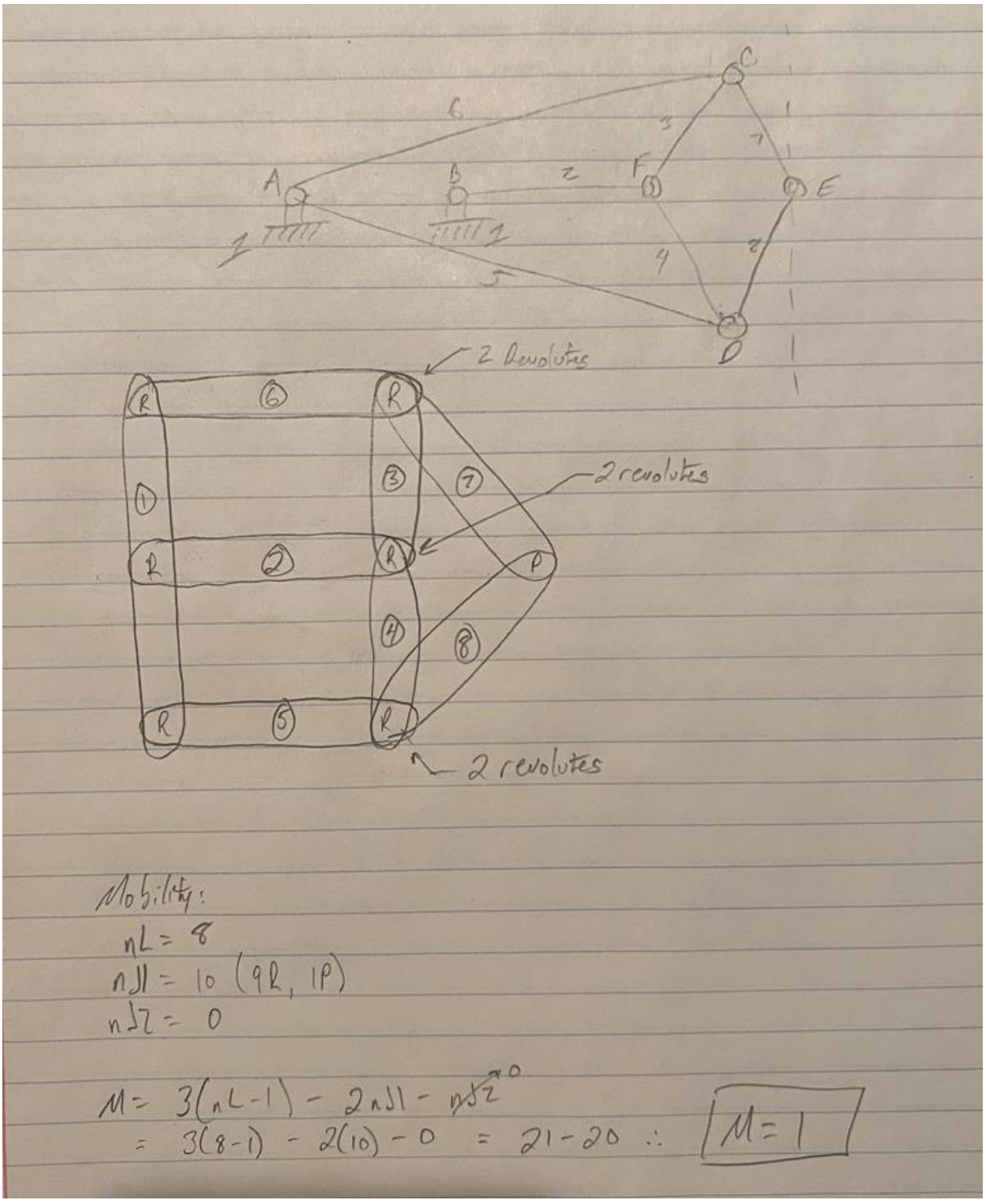


7) Submit PDF copy via Canvas.

ME 481 - H02 **Name Tyler Smith**

EXTRA CREDIT

Provide a drawing of the Peaucellier mechanism. Diagram its topology and analyze its mobility.



Mobility:

$n_L = 8$

$n_{J1} = 10$ (9R, 1P)

$n_{J2} = 0$

$M = 3(n_L - 1) - 2n_{J1} - n_{J2}$

$= 3(8-1) - 2(10) - 0 = 21 - 20 \therefore \boxed{M = 1}$

ME 481 - H02 **Name _Francis D. Sposato_**
(fds5076)_____

1) Download https://www.mne.psu.edu/sommer/me481/h02.docx

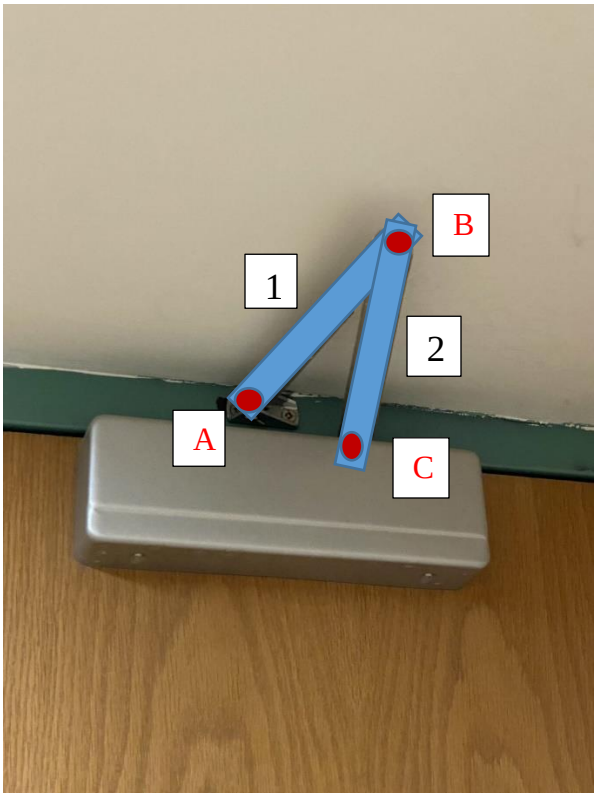
2) Obtain a digital image of a **planar** linkage mechanism, and paste it into this MS-Word document. You may take a digital photo, scan a hardcopy photograph or drawing, or obtain an on-line image.

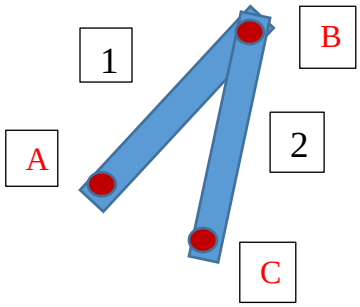
3) Provide a name and brief description of the purpose for your mechanism.

This mechanism, which I will call the "door stopper", is found at the top of heavy doors and is meant to slow the angular velocity of the door as it closes so as to prevent it from slamming shut.

4) Use the MS-Word drawing toolbar or other drawing tools to draw the kinematic skeletal diagram for your mechanism directly on top of your image. Additionally, copy the skeletal diagram and past it onto a blank area of this this MS-Word file. Clearly label the links and joints. Number the links using 1 for the ground link, and letter the joints A, B, C, etc.

ME 481 - H02 **Name _Francis D. Sposato_**
(fds5076)

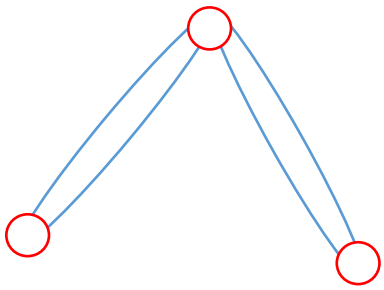




5) Identify the number of links (nL), 1 DOF joints (nJ_1), 2 DOF joints (nJ_2) and mobility (M).

nL ____2_____ nJ_1 ____3_____ nJ_2 ___0_____ M ___1_____

6) Diagram the topology of your mechanism.



7) Submit PDF copy via Canvas.

ME 481 - H02 **Name Francis D. Sposato (fds5076)**

EXTRA CREDIT

Provide a drawing of the Peaucellier mechanism. Diagram its topology and analyze its mobility.

ME 481 - H02 **Name Jean Starr**

1) Download https://www.mne.psu.edu/sommer/me481/h02.docx

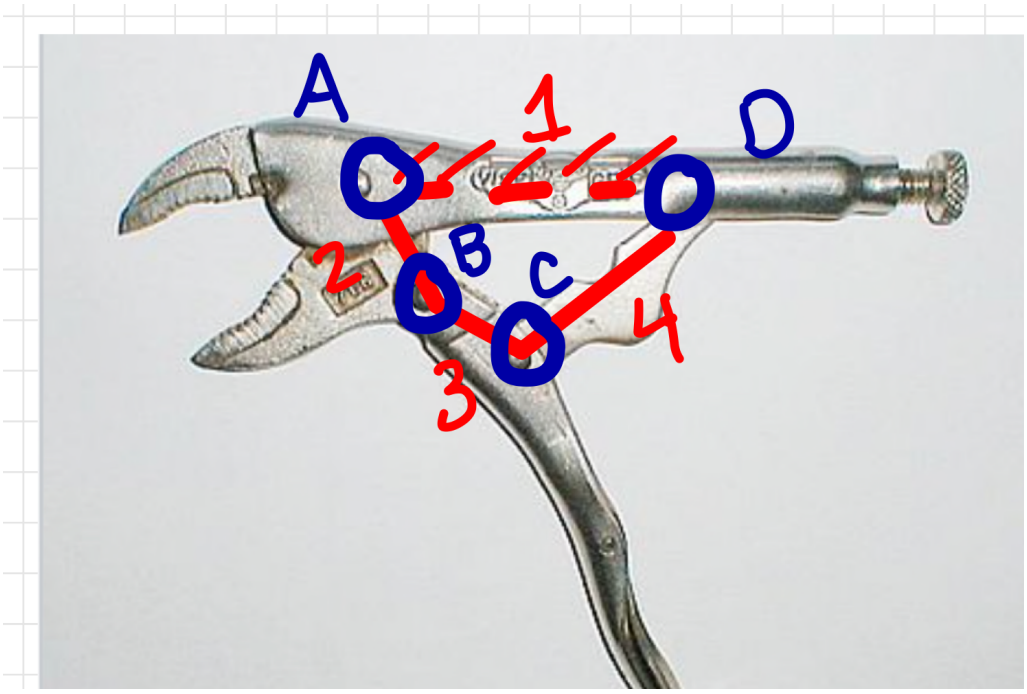
2) Obtain a digital image of a **planar** linkage mechanism, and paste it into this MS-Word document. You may take a digital photo, scan a hardcopy photograph or drawing, or obtain an on-line image.

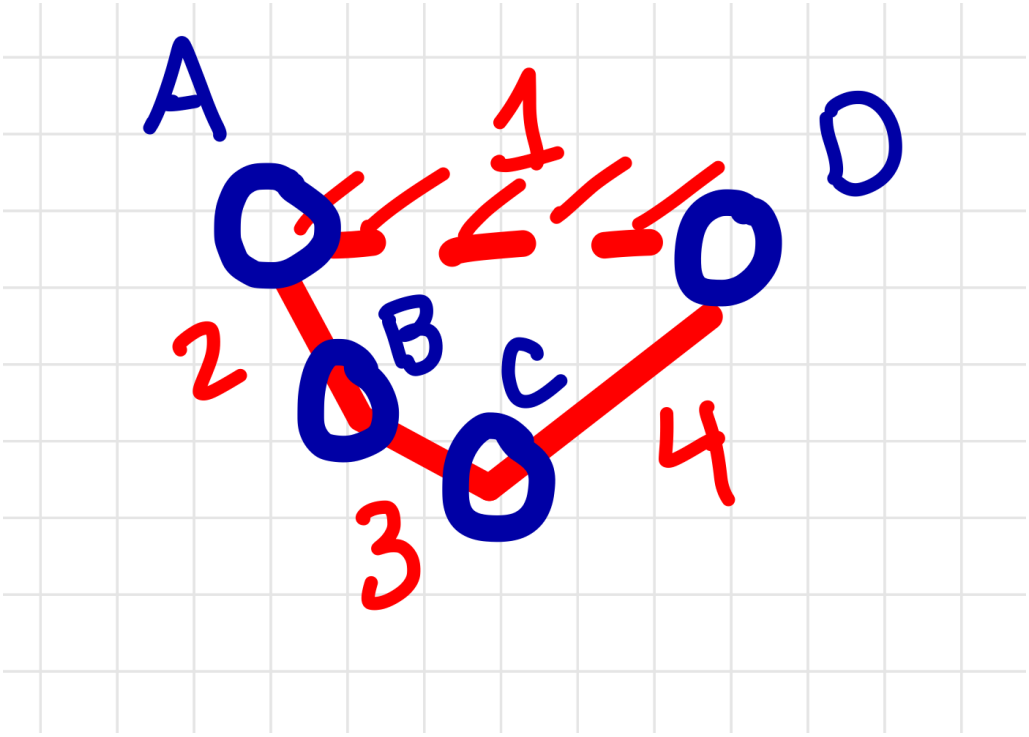
3) Provide a name and brief description of the purpose for your mechanism.

This is a picture of locking pliers. By squeezing the grips together, the pliers close and clamp onto objects as a result.

ME 481 - H02 **Name Jean Starr**

4) Use the MS-Word drawing toolbar or other drawing tools to draw the kinematic skeletal diagram for your mechanism directly on top of your image. Additionally, copy the skeletal diagram and past it onto a blank area of this this MS-Word file. Clearly label the links and joints. Number the links using 1 for the ground link, and letter the joints A, B, C, etc.



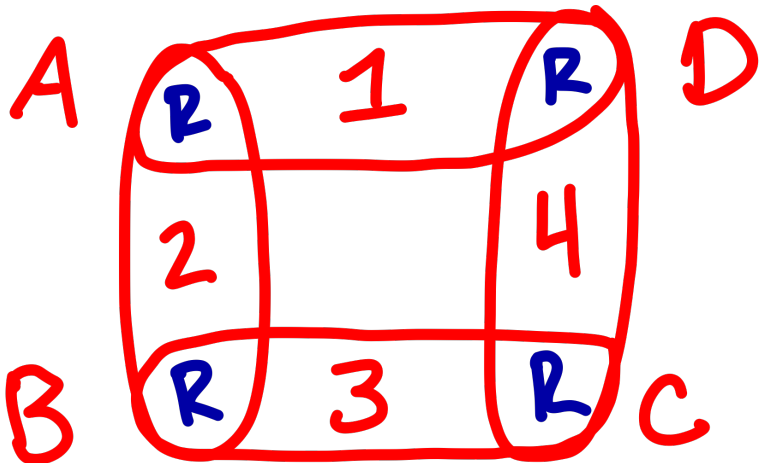


ME 481 - H02 **Name Jean Starr**

5) Identify the number of links (nL), 1 DOF joints (nJ_1), 2 DOF joints (nJ_2) and mobility (M).

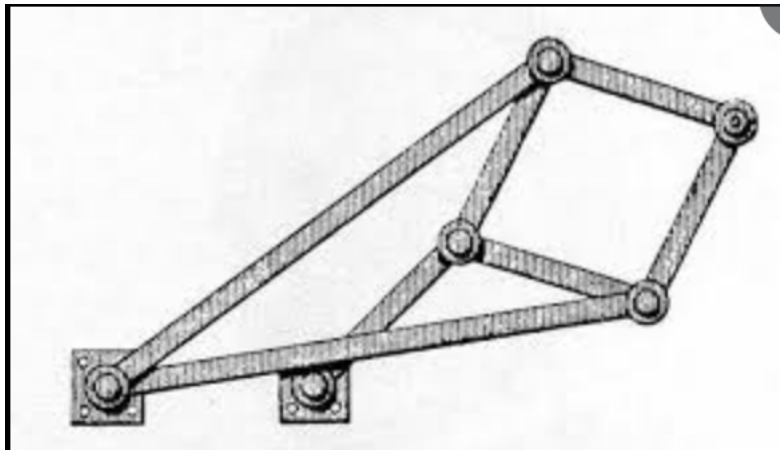
nL = 4 $nJ_1 = 4$ $nJ_2 = 0$ M=1

6) Diagram the topology of your mechanism.

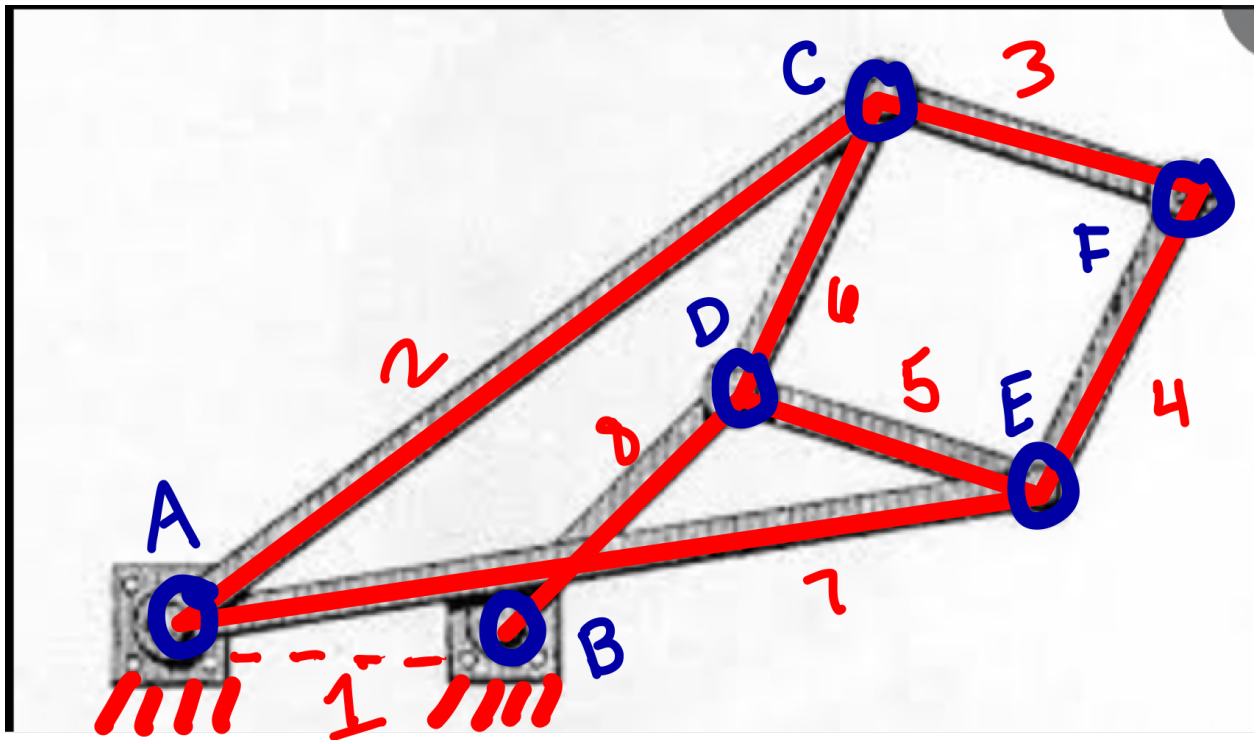


7) Submit PDF copy via Canvas.

EXTRA CREDIT
Provide a drawing of the Peaucellier mechanism. Diagram its topology and analyze its mobility.

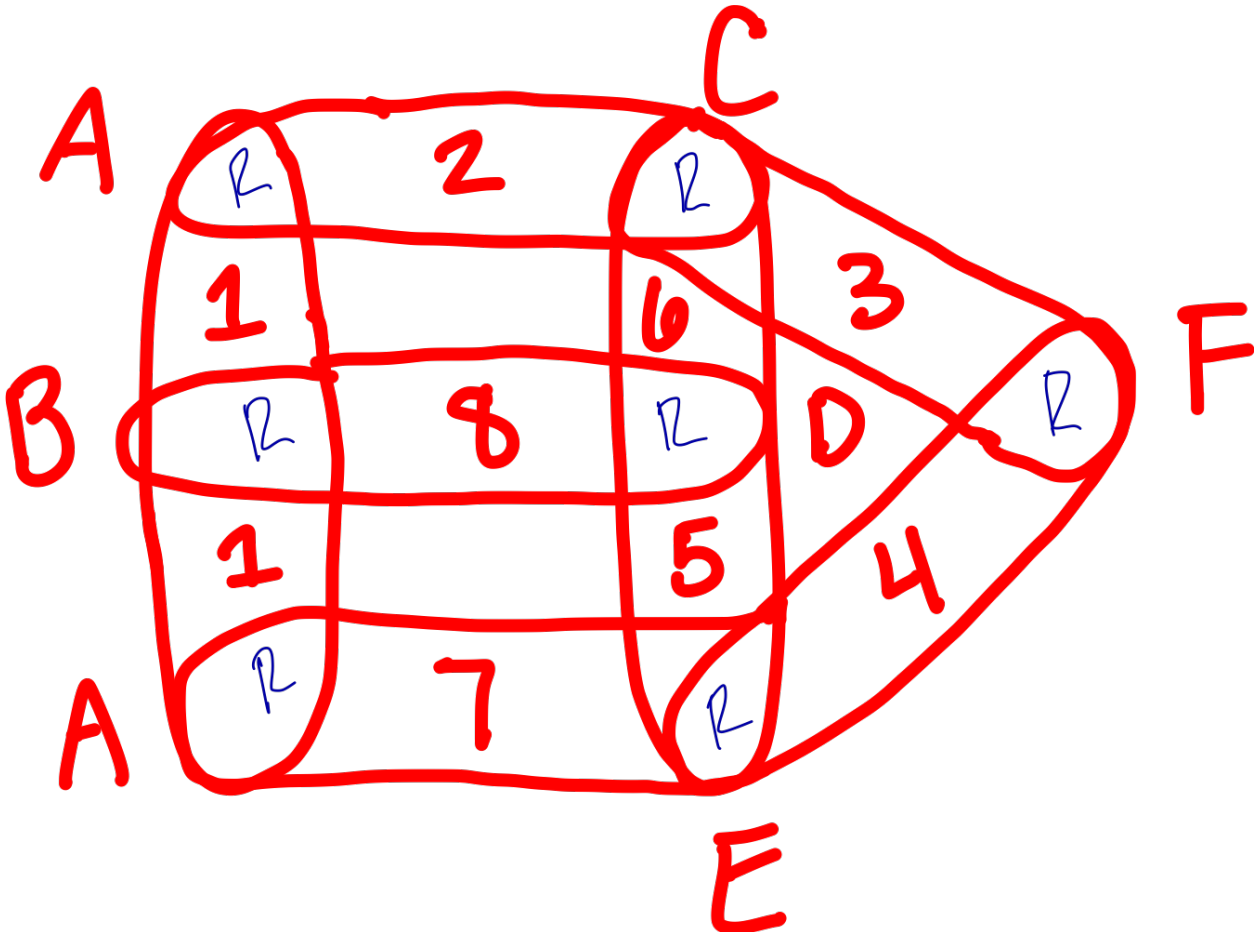


ME 481 - H02 **Name Jean Starr**



$nL = 8$ $nJ_1 = 10$ $nJ_2 = 0$ $M=1$

ME 481 - H02 **Name Jean Starr**



ME 481 - H02 **Name** _____

1) Download https://www.mne.psu.edu/sommer/me481/h02.docx

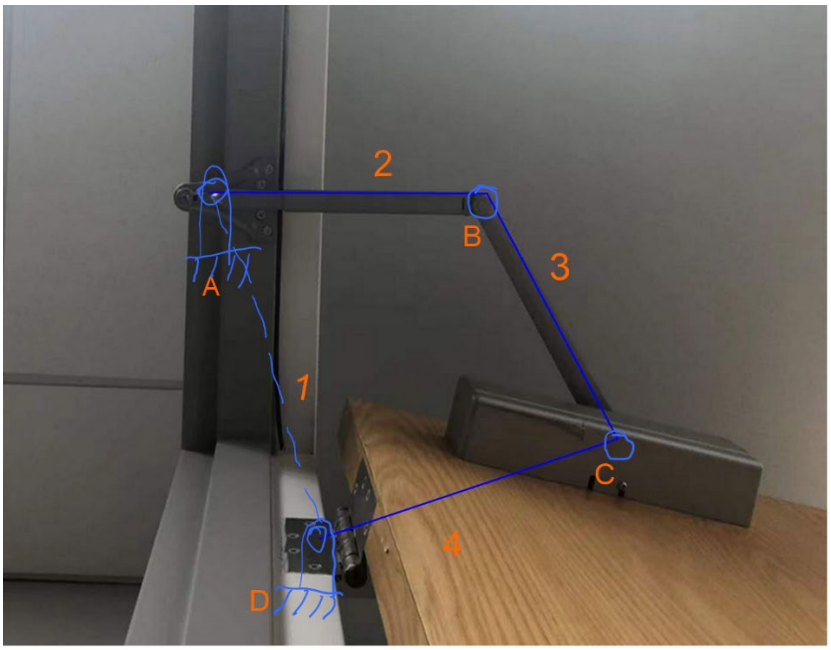
2) Obtain a digital image of a **planar** linkage mechanism, and paste it into this MS-Word document. You may take a digital photo, scan a hardcopy photograph or drawing, or obtain an on-line image.

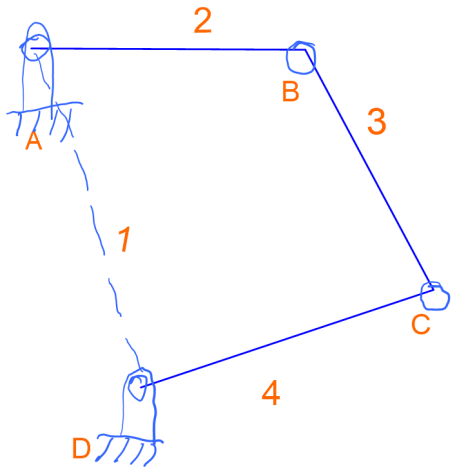
3) Provide a name and brief description of the purpose for your mechanism.

Door pull rod: it could be used to open and close the door

4) Use the MS-Word drawing toolbar or other drawing tools to draw the kinematic skeletal diagram for your mechanism directly on top of your image. Additionally, copy the skeletal diagram and past it onto a blank area of this this MS-Word file. Clearly label the links and joints. Number the links using 1 for the ground link, and letter the joints A, B, C, etc.
+

ME 481 - H02 **Name** _____

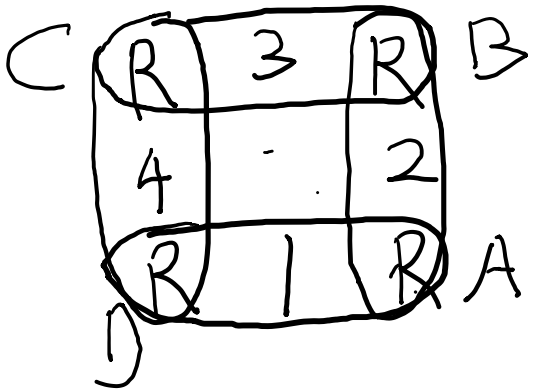




5) Identify the number of links (nL), 1 DOF joints (nJ_1), 2 DOF joints (nJ_2) and mobility (M).

nL 4 nJ_1 4 nJ_2 0 M 1

6) Diagram the topology of your mechanism.

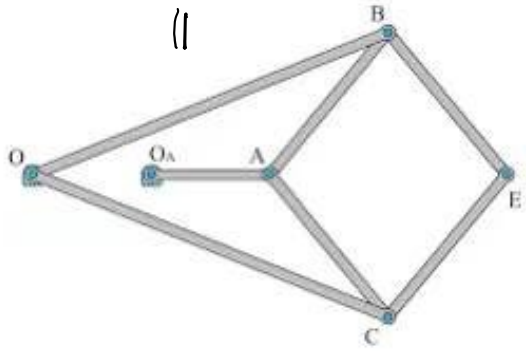


7) Submit PDF copy via Canvas.

ME 481 - H02 **Name** _____

EXTRA CREDIT

Provide a drawing of the Peaucellier mechanism. Diagram its topology and analyze its mobility.



ME 481 - H02 **NAME:** MATTHEW WILLIAMS

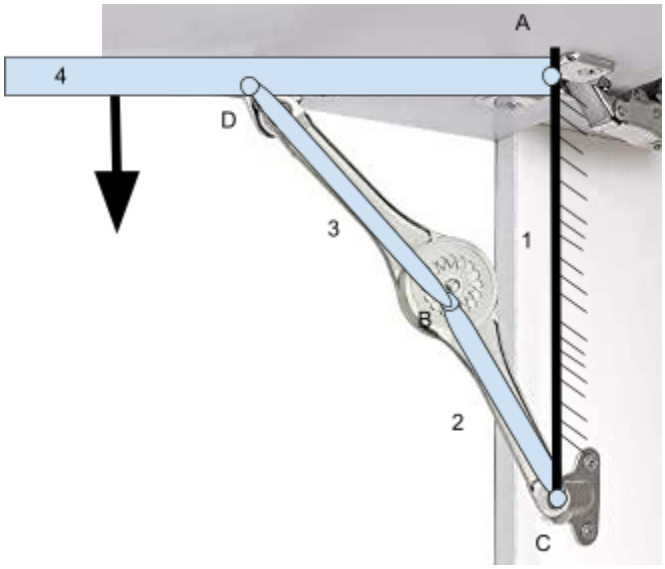
1) Download https://www.mne.psu.edu/sommer/me481/h02.docx

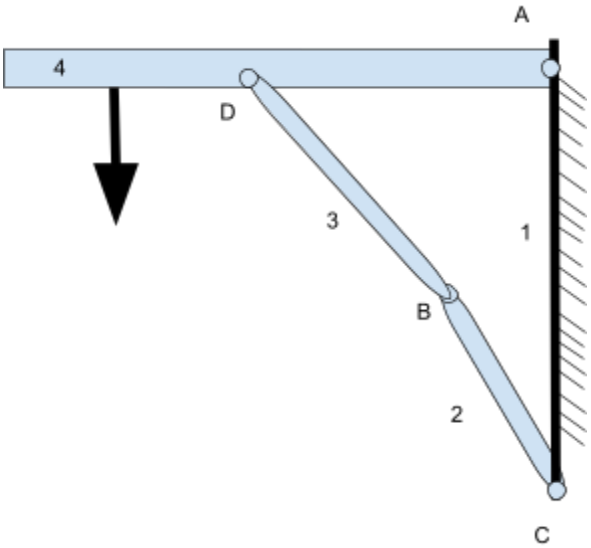
2) Obtain a digital image of a **planar** linkage mechanism, and paste it into this MS-Word document. You may take a digital photo, scan a hardcopy photograph or drawing, or obtain an on-line image.

3) Provide a name and brief description of the purpose for your mechanism.

This linkage is for a kitchen cabinet door. It allows for the smooth movement of the door to open and close.

4) Use the MS-Word drawing toolbar or other drawing tools to draw the kinematic skeletal diagram for your mechanism directly on top of your image. Additionally, copy the skeletal diagram and past it onto a blank area of this MS-Word file. Clearly label the links and joints. Number the links using 1 for the ground link,
and letter the joints A, B, C, etc.

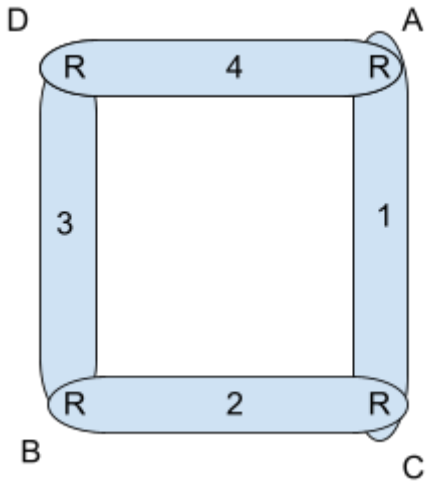




5) Identify the number of links (nL), 1 DOF joints (nJ_1), 2 DOF joints (nJ_2) and mobility (M).

nL : 4 nJ: 4 nJ: 0 M: 3(4 -1) - 2(4) - 0 = 1

6) Diagram the topology of your mechanism.



7) Submit PDF copy via Canvas.

EXTRA CREDIT
Provide a drawing of the Peaucellier mechanism. Diagram its topology and analyze its mobility.

ME 481 - H02 **Name Brian Zhang**

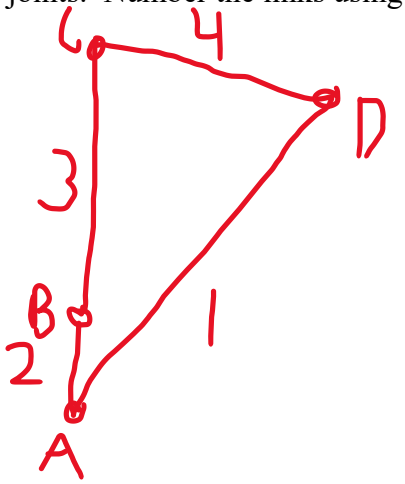
1) Download https://www.mne.psu.edu/sommer/me481/h02.docx

2) Obtain a digital image of a **planar** linkage mechanism, and paste it into this MS-Word document. You may take a digital photo, scan a hardcopy photograph or drawing, or obtain an on-line image.

3) Provide a name and brief description of the purpose for your mechanism.

This is a picture of an oil pumpjack. The purpose of this mechanism is to extract oil from below ground when the underground pressure is not high enough to force the oil to flow to the surface directly.

4) Use the MS-Word drawing toolbar or other drawing tools to draw the kinematic skeletal diagram for your mechanism directly on top of your image. Additionally, copy the skeletal diagram and past it onto a blank area of this this MS-Word file. Clearly label the links and joints. Number the links using 1 for the ground link, and letter the joints A, B, C, etc.

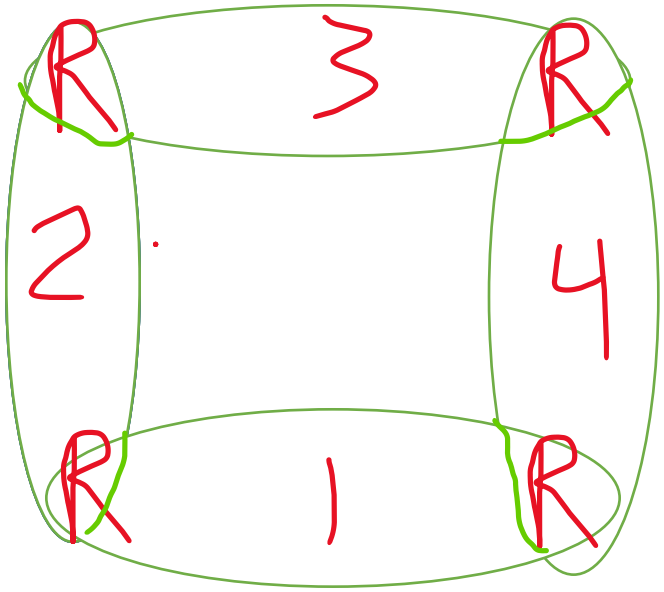


ME 481 - H02 **Name Brian Zhang**

5) Identify the number of links (nL), 1 DOF joints (nJ_1), 2 DOF joints (nJ_2) and mobility (M).

nL _____4_____ nJ_1 _____4____ nJ_2 _____0____ M ____1_____

6) Diagram the topology of your mechanism.

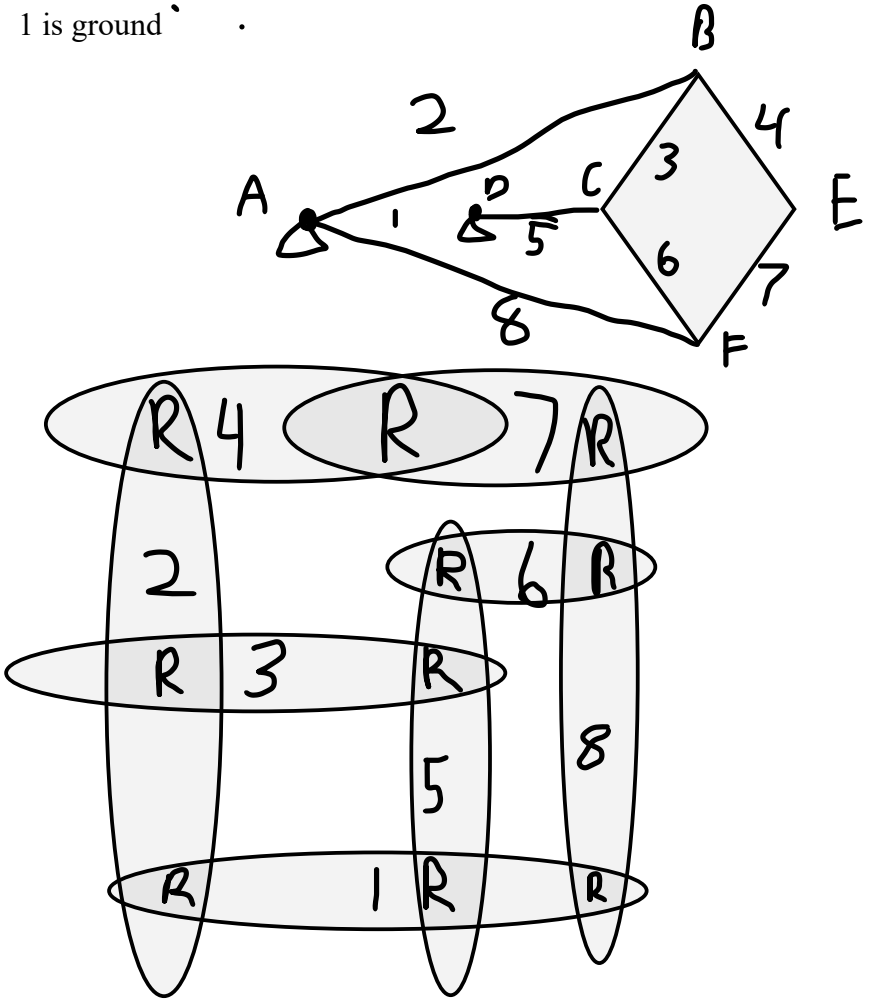


ME 481 - H02 **Name Brian Zhang**

7) Submit PDF copy via Canvas.

EXTRA CREDIT
Provide a drawing of the Peaucellier mechanism. Diagram its topology and analyze its mobility.

1 is ground



$$M = 3(8-1) - 2*10 - 0$$

Mobility = 1