

Description
No Data

Simulation of Quiz 4

Date: Tuesday, October 3, 2023
Designer: Jakob Werle
Study name: JW Q4
Analysis type: Static

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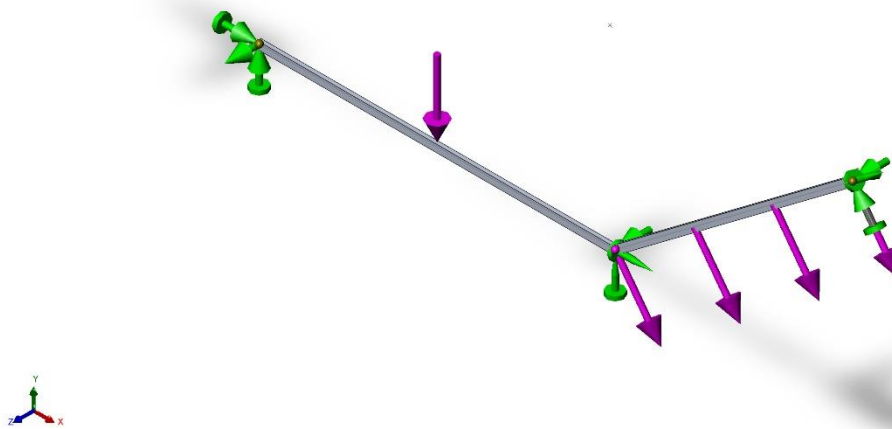


Assumptions



Model Information





Model name: Quiz 4
Current Configuration: Default<As Machined>

Beam Bodies:

Document Name and Reference	Formulation	Properties	Document Path/Date Modified
SolidBody 1(C:\PROGRAM FILES\SOLIDWORKS CORP\SOLIDWORKS\LANG\ENGLISH\WELDMENT PROFILES\CUSTOM\ENGLISH\1.5 BY .75 IN REC 2 - IS MISSING(1)[1])	Beam - Uniform C/S	Section Standard-custom/english/1.5 by .75 in rec 2 Section Area: 1.125in ² Length:72in Volume:81in ³ Mass Density:0.0975437lb/in ³ Mass:7.90104lb Weight:7.89568lbf	C:\Users\jakob\software\TU\23FL\CAD\Q4\Quiz 4.SLDPRT Oct 3 14:22:36 2023
SolidBody 2(C:\PROGRAM FILES\SOLIDWORKS CORP\SOLIDWORKS\LANG\ENGLISH\WELDMENT PROFILES\CUSTOM\ENGLISH\1.5 BY .75 IN REC 2 - IS MISSING(1)[2])	Beam - Uniform C/S	Section Standard-custom/english/1.5 by .75 in rec 2 Section Area: 1.125in ² Length:60in Volume:67.5in ³ Mass Density:0.0975437lb/in ³ Mass:6.5842lb Weight:6.57973lbf	C:\Users\jakob\software\TU\23FL\CAD\Q4\Quiz 4.SLDPRT Oct 3 14:22:36 2023



Study Properties

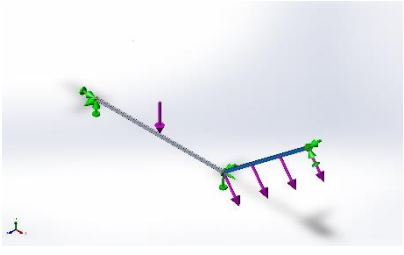
Study name	JW Q4
Analysis type	Static
Mesh type	Beam Mesh
Solver type	Automatic
Inplane Effect:	Off
Soft Spring:	Off
Inertial Relief:	Off
Incompatible bonding options	Automatic
Large displacement	Off
Compute free body forces	On
Result folder	SOLIDWORKS document (C:\Users\jakob\software\TU\23FL\CAD\Q4)

Units

Unit system:	English (IPS)
Length/Displacement	in
Temperature	Fahrenheit
Angular velocity	Hertz
Pressure/Stress	psi

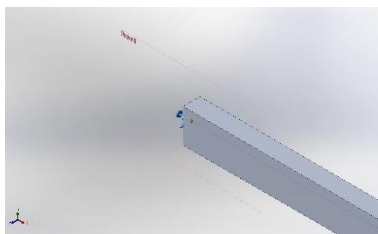
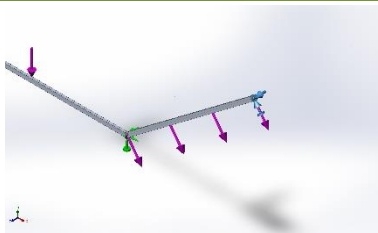
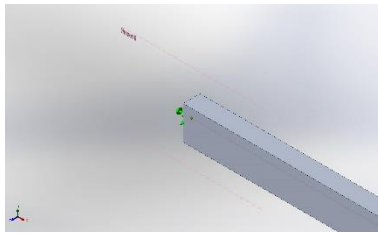


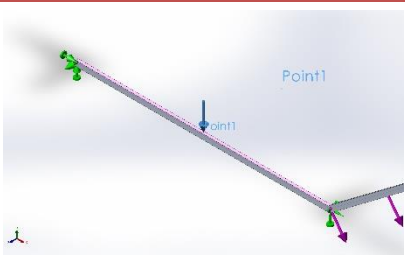
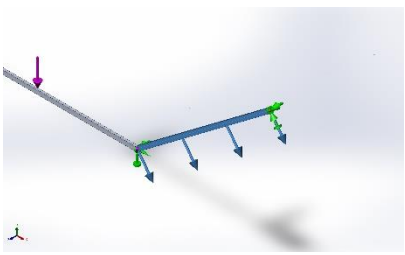
Material Properties

Model Reference	Properties	Components
	Name: 6061-T6 (SS) Model type: Linear Elastic Isotropic Default failure criterion: Unknown Yield strength: 39,885.4 psi Tensile strength: 44,961.7 psi Elastic modulus: 1.00076e+07 psi Poisson's ratio: 0.33 Mass density: 0.0975437 lb/in^3 Shear modulus: 3.77098e+06 psi Thermal expansion coefficient: /Fahrenheit	SolidBody 1(C:\PROGRAM FILES\SOLIDWORKS CORP\SOLIDWORKS\LANG\ENGLISH\WELDMENT PROFILES\CUSTOM\ENGLISH\1.5 BY .75 IN REC 2 - IS MISSING(1)[1])(Quiz 4), SolidBody 2(C:\PROGRAM FILES\SOLIDWORKS CORP\SOLIDWORKS\LANG\ENGLISH\WELDMENT PROFILES\CUSTOM\ENGLISH\1.5 BY .75 IN REC 2 - IS MISSING(1)[2])(Quiz 4)
Curve Data:N/A		



Loads and Fixtures

Fixture name	Fixture Image	Fixture Details
Reference Geometry-1		Entities: 1 Joint(s) Reference: Front Type: Use reference geometry Translation: 0, 0, 0 Rotation: 0, 0, --- Units: in, rad
Reference Geometry-2		Entities: 1 Joint(s) Reference: Face< 1 > Type: Use reference geometry Translation: 0, ---, 0 Rotation: ---, 0, 0 Units: in, rad
Reference Geometry-3		Entities: 1 Joint(s) Reference: Front Type: Use reference geometry Translation: ---, ---, 0 Rotation: 0, 0, --- Units: in, rad

Load name	Load Image	Load Details
Force-1		Entities: 1 Point Load(s) Reference: Face< 1 > Type: Apply force Values: ---, ---, 700 lbf Moments: ---, ---, --- lbf.in
Force-2		Entities: 1 Beam (s) Reference: Face< 1 > Type: Apply force Values: ---, ---, 7.5 lbf/in Moments: ---, ---, --- lbf.in/in



Connector Definitions

No Data

Interaction Information

No Data

Mesh information

Mesh type	Beam Mesh
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Mesh information - Details

Total Nodes	62
Total Elements	59
Time to complete mesh(hh:mm:ss):	00:00:01
Computer name:	JW-MACHINE

Sensor Details

No Data



Resultant Forces

Reaction forces

Selection set	Units	Sum X	Sum Y	Sum Z	Resultant
Entire Model	lbf	-270	1,060	4.18883e-12	1,093.85

Reaction Moments

Selection set	Units	Sum X	Sum Y	Sum Z	Resultant
Entire Model	lbf.in	9.38793e-12	-6.28603e-11	-1.62425e-25	6.35574e-11

Free body forces

Selection set	Units	Sum X	Sum Y	Sum Z	Resultant
Entire Model	lbf	0	0	0	0

Free body moments

Selection set	Units	Sum X	Sum Y	Sum Z	Resultant
Entire Model	lbf.in	0	0	0	0



Beams

Beam Forces

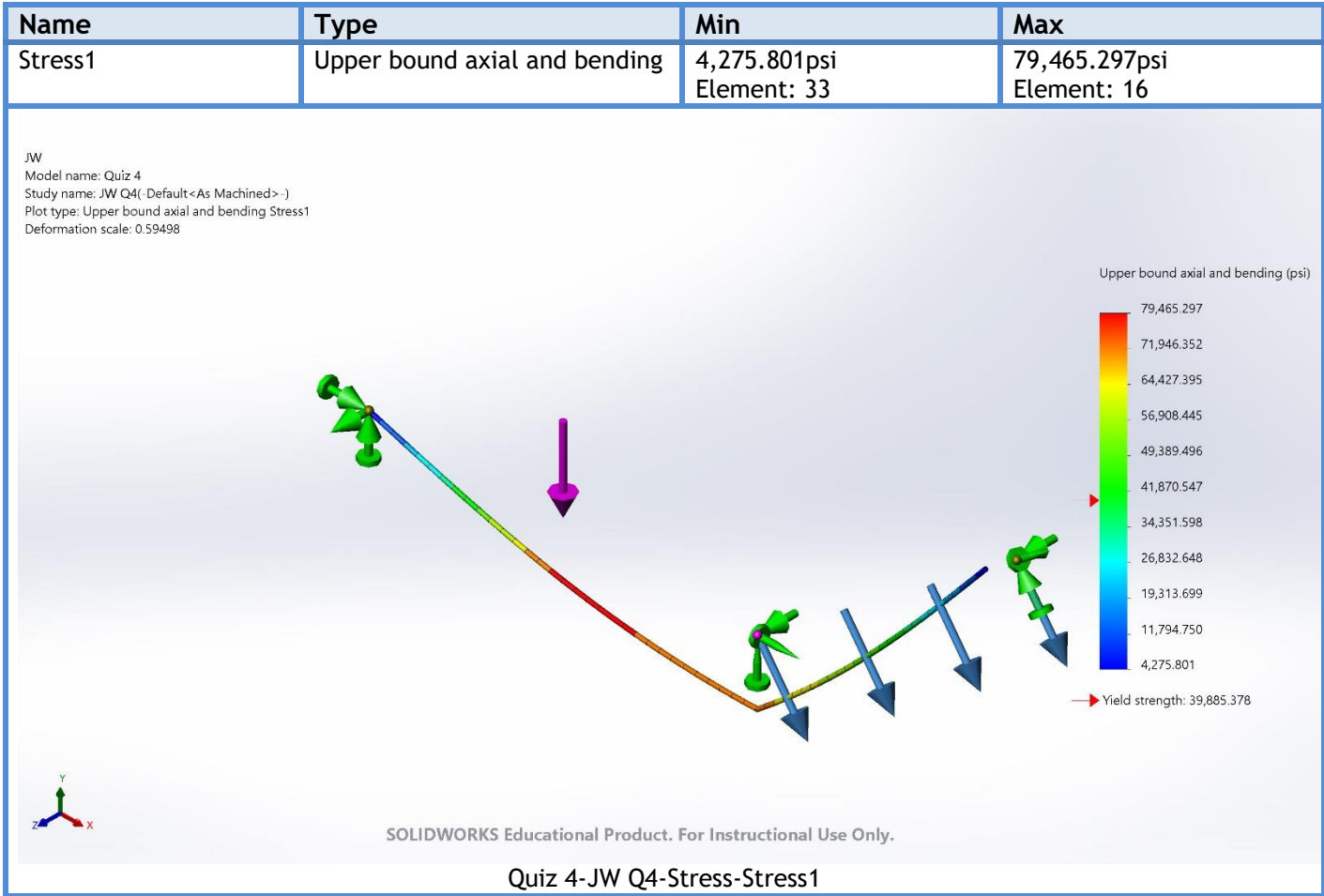
Beam Name	Joints	Axial(lbf)	Shear1(lbf)	Shear2(lbf)	Moment1(lbf.in)	Moment2(lbf.in)	Torque(lbf.in)
Beam-1(C:\PROGRAM FILES\SOLIDWORKS CORP\SOLIDWORKS\LANG\ENGLISH\WELDMENT PROFILES\CUSTOM\ENGLISH\1.5 BY .75 IN REC 2 - IS MISSING(1)[1])	1	-59.6939	-620.408	1.7042e-13	6.58889e-12	4.39176e-08	-2.82621e-14
	2	59.6939	-79.5918	2.97906e-13	-2.34486e-11	19,469.4	-2.82621e-14
Beam-2(C:\PROGRAM FILES\SOLIDWORKS CORP\SOLIDWORKS\LANG\ENGLISH\WELDMENT PROFILES\CUSTOM\ENGLISH\1.5 BY .75 IN REC 2 - IS MISSING(1)[2])	1	6.44673e-06	-549.49	1.33984e-12	4.46032e-11	-8.39579e-08	-3.59821e-14
	2	-0.00010103	99.4898	1.68548e-12	8.98462e-11	-19,469.4	4.49457e-12

Beam Stresses

Beam Name	Joints	Axial(psi)	Bending Dir1(psi)	Bending Dir2(psi)	Torsional (psi)	Upper bound axial and bending(psi)
Beam-1(C:\PROGRAM FILES\SOLIDWORKS CORP\SOLIDWORKS\LANG\ENGLISH\WELDMENT PROFILES\CUSTOM\ENGLISH\1.5 BY .75 IN REC 2 - IS MISSING(1)[1])	1	-53.0612	4.68543e-11	1.56152e-07	-1.6366e-13	53.0612
	2	-53.0612	1.66746e-10	69,224.5	1.6366e-13	69,277.6
Beam-2(C:\PROGRAM FILES\SOLIDWORKS CORP\SOLIDWORKS\LANG\ENGLISH\WELDMENT PROFILES\CUSTOM\ENGLISH\1.5 BY .75 IN REC 2 - IS MISSING(1)[2])	1	5.73043e-06	3.17178e-10	2.98517e-07	2.08365e-13	6.02927e-06
	2	8.98046e-05	6.38907e-10	69,224.5	2.60272e-11	69,224.5

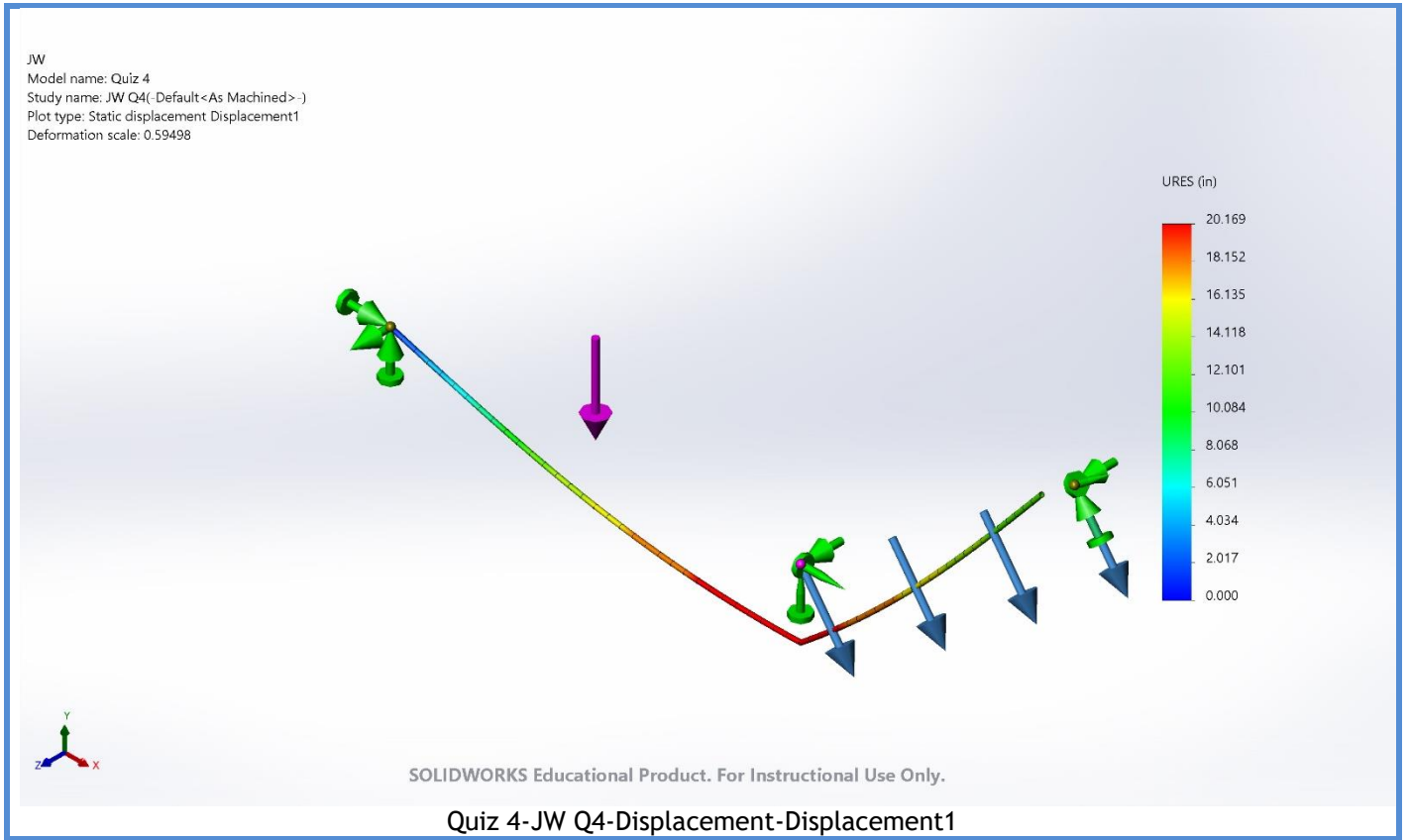


Study Results



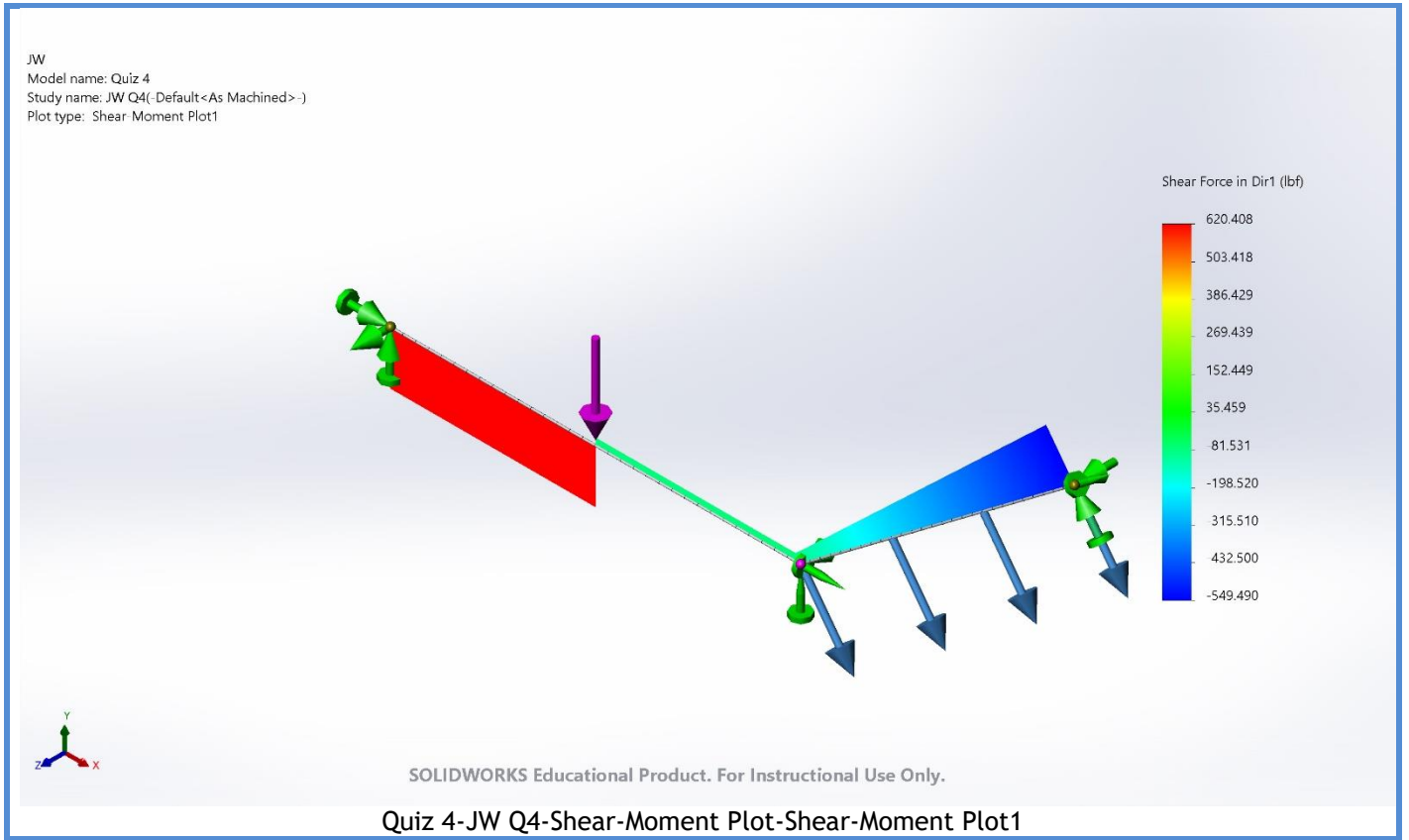
Name	Type	Min	Max
Displacement1	URES: Resultant Displacement	0.000in Node: 33	20.169in Node: 3





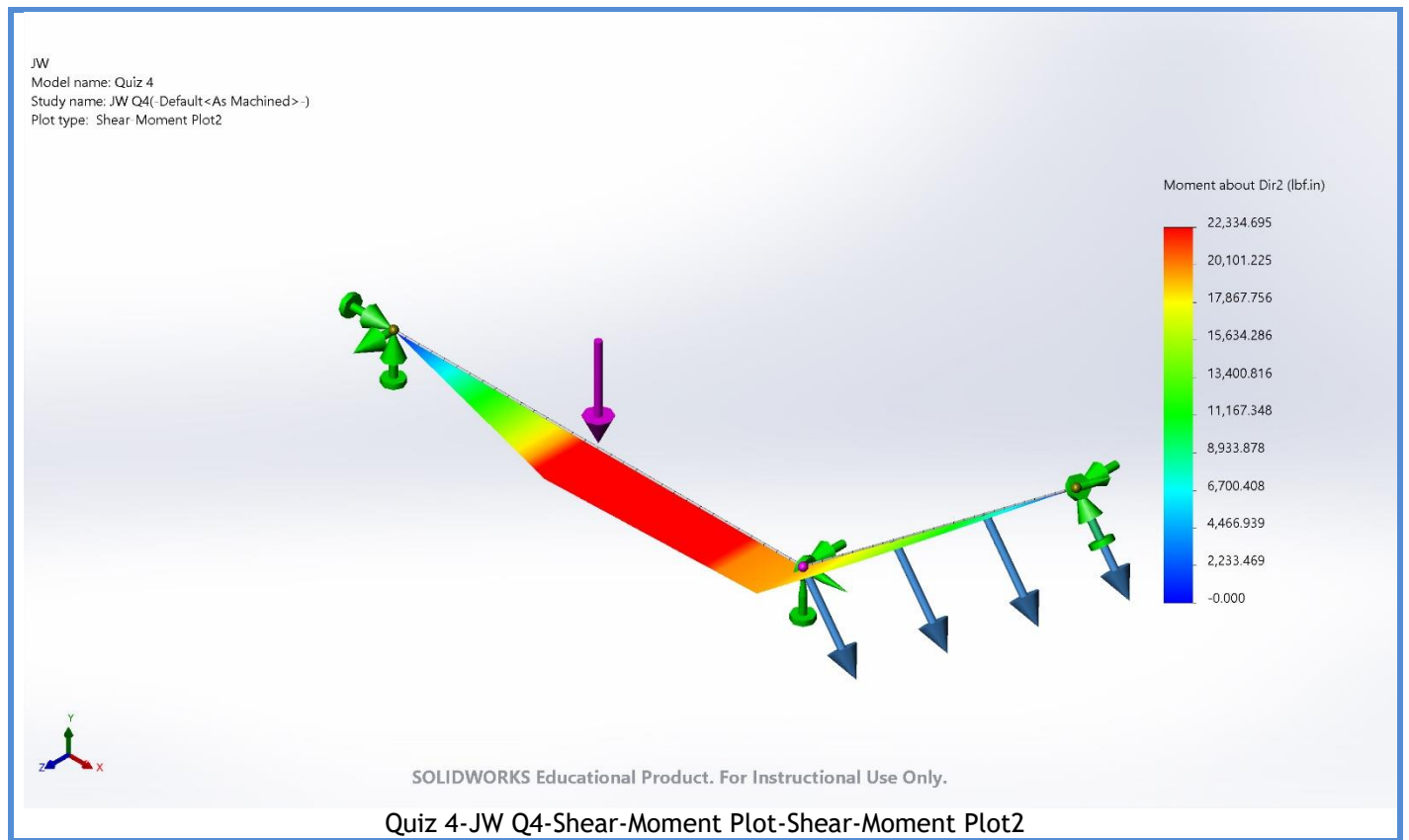
Name	Type
Shear-Moment Plot1	Shear Force in Dir1





Name	Type
Shear-Moment Plot2	Moment about Dir2





Conclusion

