

SOLIDWORKS > Model Motion Study 1

SOLIDWORKS Student Edition - Academic Use Only

Mass Properties

lab 4 part 1

Include hidden bodies/components

Create Center of Mass feature

Show weld bead mass

Report coordinate values relative to: -- default --

Mass properties of lab 4 part 1
Configuration: Default
Coordinate system: -- default --

Density = 0.04 pounds per cubic inch

Mass = 0.18 pounds

Volume = 5.00 cubic inches

Surface area = 126.27 square inches

Center of mass: (inches)
X = 0.00
Y = 5.57
Z = -0.25

Principal axes of inertia and principal moments of inertia: (pounds * square inches)
Taken at the center of mass.

I _x = (0.00, 0.99, -0.10)	P _x = 0.27
I _y = (-1.00, 0.00, 0.00)	P _y = 1.32
I _z = (0.00, 0.10, 0.99)	P _z = 1.47

Moments of inertia: (pounds * square inches)
Taken at the center of mass and aligned with the output coordinate system. (Using positive tensor notation.)

L _{xx} = 1.32	L _{xy} = 0.00	L _{xz} = 0.00
L _{yx} = 0.00	L _{yy} = 0.29	L _{yz} = -0.12
L _{zx} = 0.00	L _{zy} = -0.12	L _{zz} = 1.46

Moments of inertia: (pounds * square inches)
Taken at the output coordinate system. (Using positive tensor notation.)

I _{xx} = 6.94	I _{xy} = 0.00	I _{xz} = 0.00
I _{yx} = 0.00	I _{yy} = 0.30	I _{yz} = -0.37
I _{zx} = 0.00	I _{zy} = -0.37	I _{zz} = 7.06

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Let's get started

SOLIDWORKS

Mass Properties

lab 4 part 2

Options...

Include hidden bodies/components
 Create Center of Mass feature
 Show weld bead mass
Report coordinate values relative to: -- default --

Mass properties of lab 4 part 2
Configuration: Default
Coordinate system: -- default --

Density = 0.04 pounds per cubic inch
Mass = 1.37 pounds
Volume = 37.87 cubic inches
Surface area = 306.41 square inches

Center of mass: (inches)
X = 0.00
Y = 4.28
Z = -3.51

Principal axes of inertia and principal moments of inertia: (pounds * square inches)
Taken at the center of mass.
Ix = (0.00, 0.83, -0.56) Px = 2.90
Iy = (0.00, 0.56, 0.83) Py = 45.43
Iz = (1.00, 0.00, 0.00) Pz = 46.45

Moments of inertia: (pounds * square inches)
Taken at the center of mass and aligned with the output coordinate system. (Using positive tensor notation.)
Lxx = 46.45 Lxy = 0.00 Lzx = 0.00
Lyx = 0.00 Lyy = 16.46 Lyz = -19.82
Lzx = 0.00 Lzy = -19.82 Lzz = 31.87

Moments of inertia: (pounds * square inches)
Taken at the output coordinate system. (Using positive tensor notation.)
Ixx = 88.36 Ixy = 0.00 Izx = 0.00
Iyx = 0.00 Iyy = 33.31 Iyz = -40.37
Izx = 0.00 Izy = -40.37 Izz = 56.93

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Preparation

Offset Convert Mirror Entities Extruded Boss/Base Fillet Linear Pattern Reference Geometry Measure Mass Properties

Extruded Cut Draft Shell

lab 4 part 2

Search files and models

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3D VR

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Editing Part Simplified Interface IPS

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Sketch1 of lab 4 part 3*

Search files and models

Exit Sketch Line Corner Rectangle Circle Polygon Centerpoint Arc Smart Dimension Add Relation Sketch Trim Linear Sketch Pattern Entities Offset Entities Extruded Boss/Base Extruded Cut Fillet Linear Mirror Draft Shell Reference Geometry Measure Mass Properties

Basic Modeling Tools SOLIDWORKS CAM SOLIDWORKS CAM TBM Simulation Analysis Preparation

lab 4 part 3

- Equations
- Material <not specified>
- Front Plane
- Top Plane
- Right Plane
- Origin
- Revolve1
- Sketch1
- Shell1

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9.50

2.00

R1.00

R2.50

R2.00

4.00

4.00

7.00

5.13in 11.65in 0in Fully Defined Editing Sketch1 IPS Simplified Interface

SOLIDWORKS > Home > Sketch > Line > Corner > Circle > Polygon > Centerpoint > Spline > Smart Dimension > Add Relation > Sketch Entities > Linear Sketch Pattern > Offset Entities > Convert Entities > Mirror Entities > Extruded Boss/Base > Extruded Cut > Fillet > Linear Pattern > Mirror Draft Shell > Reference Geometry > Measure > Mass Properties

Basic Modeling Tools SOLIDWORKS CAM SOLIDWORKS CAM TBM Simulation Analysis Preparation

Mass Properties

lab 4 part 3

Options... Override Mass Properties... Recalculate

Include hidden bodies/components

Create Center of Mass feature

Show weld bead mass

Report coordinate values relative to: -- default --

Mass properties of lab 4 part 3
Configuration: Default
Coordinate system: -- default --

Density = 0.32 pounds per cubic inch

Mass = 5.89 pounds

Volume = 18.30 cubic inches

Surface area = 371.33 square inches

Center of mass: (inches)
X = 0.00
Y = 0.00
Z = 3.05

Principal axes of inertia and principal moments of inertia: (pounds * square inches)
Taken at the center of mass.

I _x = (0.00, 0.00, 1.00)	P _x = 32.37
I _y = (1.00, 0.00, 0.00)	P _y = 68.11
I _z = (0.00, 1.00, 0.00)	P _z = 68.11

Moments of inertia: (pounds * square inches)
Taken at the center of mass and aligned with the output coordinate system. (Using positive)

L _{xx} = 68.11	L _{xy} = 0.00	L _{xz} = 0.00
L _{yx} = 0.00	L _{yy} = 68.11	L _{yz} = 0.00
L _{zx} = 0.00	L _{zy} = 0.00	L _{zz} = 32.37

Moments of inertia: (pounds * square inches)
Taken at the output coordinate system. (Using positive tensor notation.)

I _{xx} = 122.99	I _{xy} = 0.00	I _{xz} = 0.00
I _{yx} = 0.00	I _{yy} = 122.99	I _{yz} = 0.00
I _{zx} = 0.00	I _{zy} = 0.00	I _{zz} = 32.37

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Editing Part Simplified Interface IPS