


HW 3


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COMPLETED

Learn the basics of MATLAB® through this introductory tutorial on commonly used features and workflows. Get started with the MATLAB language and environment so that you can analyze science and engineering data.

Course modules

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About this course




Format: [Self-paced](#)
Length: About 2 hours
Language: English ([change](#))

Features

- Hands-on exercises with automated feedback
- Access to MATLAB through your web browser
- Shareable progress report and course certificate

Authored By:



Renee Coetsee
MathWorks

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% Headers would normally go here. Leave them out since they are
% problematic in MATLAB Grader.

```

% Create a vector of the masses and a vector of the inner radii
mass = [2, 1.3, 1.5, 1.2]      % in kg
rad_in = [3.5, 5.5, 4, 8] ./ 100 % in m

% Assign a value for the outer radius
rad_out = 10 / 100              % in m

%Calculate moment of inertia for each sphere, store results in one
vector
inertia = 2 .* mass ./ 5 .* (rad_out.^ 5 - rad_in.^ 5) ./ (rad_out.^
3 - rad_in.^ 3)

%Determine the greatest moment of inertia
most_inertia = max(inertia)

%Determine the least moment of inertia
least_inertia = min(inertia)

```

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```

costs = [32559, 29625, 24838, 23899];
intownEff = [54, 51, 35, 34];
highwayEff = [52, 47, 42, 39];

totalPrice = costs + avgGas .* ownYears .* (avgintownMiles ./ intownEff
+ avghighwayMiles ./ highwayEff);

name = input("What is your name? ", "s");
ownYears = input("How many years do you plan to own this car? ");
avgGas = input("What is the average price of gas? ");
avgintownMiles = input("How many miles do you plan to drive in-town per
year? ");
avghighwayMiles = input("How many miles do you plan to drive on the
highway per year? ");

fprintf("\n\nPotential car analysis for %s:\n", name);
fprintf("  owning the car %i years\n", ownYears);
fprintf("  average yearly in-town miles: %i\n", avgintownMiles);
fprintf("  average yearly highway miles: %i\n", avghighwayMiles);
fprintf("  average cost of gasoline: %.2f\n\n", avgGas);

arrayfun(@(x) fprintf("Car %i: $%i\n", x, round(totalPrice(x))),
1:length(totalPrice));

```