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8.2

```
------------P8.2------------
My calculations have the following results:
dv: 10.1536 km/s
H/C: This dv seems reasonable for an interplanetry launch to mars.
H/C: ecc of transfer: 0.5471seems to be reasonable for this trajectory (is
 ellpitical but not too elliptical).
```

8.4

```
------------P8.4------------
My calculations have the following results:
T-syn Mars/Jupiter: 816.0487 solar days
Note: solar days was the prefered unit in the book.
H/C: since this is larger than the orbital period of Mars, and Jupiter is
 moving much slower than Mars, this T-syn seems reasonable.
```

8.6

```
------------P8.6------------
My calculations have the following results:
SOI radii (km):
Saturn: 54787326.7306
Uranus: 51785640.1727
Neptune: 86596294.0734
H/C: these large SOI values correspond to gas giants.
H/C: these values are close to published valeus.
```

8.7

```
------------P8.7------------
My calculations have the following results:
Delta-V required: 3.337 km/s
Excess-V: 1.5789 km/s
H/C: ecc: 0.10247 is within a sensible range for this elliptical orbit.
H/C: Delta-V seems to be reasonable for this manouver.
```

8.12

```
------------P8.12------------
My calculations have the following results:
Delta-V: 10.5654 km/s
a: 4787748776.8487 km
ecc: 0.84522
H/C: the imparted Delta-V is well within the range for a Jupiter flyby, at a
 high altitude this relatively small (for jupiter) Delta-V makes sense.
H/C: the magnitude of Excess-V for arrival and departure is the same.
```

8.16

```
Warning: joshfLambert: This function may be useful but it is not well tested
and complete argument validation has not been implimented.
------------P8.16------------
My calculations have the following results:
Delta-V: 4.9724 km/s
H/C: 'long way' and 'short way' are almost the same, this makes sense since
 arrival is almost on the opposite side of the sun from deprature.
H/C: Delta-V is in a resonable range for a transfer to Mars.
Note: My answer doesn't match exactly with the book. In debugging I hard-coded
 in the book's 'r' vectors and noticed that my lambert's solver is working
 and also my coes->'r'&'v' vectors function is working. I also double checked
 my departure and arrival times. I think there may be something wrong with
 Curtis's 'rates' table or else there is just a decent amount of error in
 propogating planet's paths this way.
```

dependancies

```
------------Dependancies------------
My code uses the following functions:
    {'C:\AERO351\A351HW4\HW4.m'                                }
    {'C:\joshFunctionsMatlab\curtisPlanet_elements_and_sv.m'}
    {'C:\joshFunctionsMatlab\joshAnomalyCalculator.m'       }
    {'C:\joshFunctionsMatlab\joshAxisRotation.m'            }
    {'C:\joshFunctionsMatlab\joshCOE.m'                     }
    {'C:\joshFunctionsMatlab\joshCOE2rv.m'                  }
    {'C:\joshFunctionsMatlab\joshHomann.m'                  }
    {'C:\joshFunctionsMatlab\joshIsOnes.m'                  }
    {'C:\joshFunctionsMatlab\joshJulian.m'                  }
    {'C:\joshFunctionsMatlab\joshStumpffCoeffs.m'           }
    {'C:\joshFunctionsMatlab\joshStumpffZ.m'                }
    {'C:\joshFunctionsMatlab\joshVazVr.m'                   }
    {'C:\joshFunctionsMatlab\joshfLambert.m'                }
```

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