ES341 In-Class Exercise – Conversion of Longitude and Latitude Name Aaron Orr

Convert the Following Locations in Lat-Lon to Decimal Degrees (show all your math work)
(given conversions: 1 deg = 60 min; 1 min = 60 sec; 1 deg = 3600 sec)

	Lat	Dec. Deg	Long	Dec. Deg.
Seattle	47°36'40" N	47.611	122°20' 57" W	122.346
Honolulu	21°18'22" N	21.37	157°50'10" W	157.833
New York	40°30'43" N	40.512°	73°58'32" W	73.9599°

Convert the following locations in Decimal Degrees to degrees-minutes-seconds

$0.7532 \times \frac{60'}{1^\circ} = 45.192'$; $.192 \times \frac{60''}{1'} = 12''$

Lat		Long		Approximate Location?
25.7532° N	25°45'12"	80.2376° W	80°14'15"	Miami
53.2356° N	53°14'8"	9.0034° W	9°0'12"	Ireland
60.487° N	60°29'13"	5.3357° E	5°20'9"	SW Norway

Seattle Lat

$36' \times \frac{1^\circ}{60'} = 0.6^\circ$

$40'' \times \frac{1'}{60''} \times \frac{1^\circ}{60'} = 0.011^\circ$

$0.611^\circ + 47^\circ = 47.611$

Honolulu Lat

$22'' \times \frac{1'}{60''} = 0.36' + 18' = 18.36' \times \frac{1^\circ}{60'} = 0.31^\circ + 21^\circ = 21.37^\circ$

New York Lat

$30' \times \frac{1^\circ}{60'} = 0.5^\circ$

$48'' \times \frac{1'}{60''} \times \frac{1^\circ}{60'} = 0.012^\circ$

$0.512^\circ + 40^\circ = 40.512^\circ$

Seattle Long

$20' \times \frac{1^\circ}{60'} = 0.33^\circ$

$57'' \times \frac{1^\circ}{3600''} = 0.016^\circ$

$0.346^\circ + 122^\circ = 122.346^\circ$

Honolulu Long

$50' \times \frac{1^\circ}{60'} = 0.83^\circ$

$10'' \times \frac{1^\circ}{3600''} = 0.003^\circ$

$0.833^\circ + 157^\circ = 157.833^\circ$

York Long

$58' \times \frac{1^\circ}{60'} = 0.967^\circ$

$32'' \times \frac{1^\circ}{3600''} = 0.0089^\circ$

$0.9759^\circ + 73^\circ = 73.9759^\circ$

2. $0.2356^\circ \times \frac{60'}{1^\circ} = 14.[136]$
$0.136' \times \frac{60''}{1'} = 8$
$\} 53^\circ 14' 8''$

3. $0.487^\circ \times \frac{60'}{1^\circ} = 29[.22]'$
$0.22' \times \frac{60''}{1'} = 13''$
$\} 60^\circ 29' 13''$

4 $0.2376^\circ \times \frac{60'}{1^\circ} = 14[.256]'$
$0.256' \times \frac{60''}{1'} = 15''$
$\} 80^\circ 14' 15''$

5 $0.0034^\circ \times \frac{60'}{1^\circ} = 0[.204]'$
$0.204' \times \frac{60''}{1'} = 12''$
$\} 9^\circ 0' 12''$

6 $0.3357^\circ \times \frac{60'}{1^\circ} = 20[.142]'$
$0.142' \times \frac{60''}{1'} = 9''$
$\} 5^\circ 20' 9''$