Solved Exercises — Conditional Expressions

Problem 1:

Earth quakes are classified according to magnitude and severity. Write a program that translates from magnitude to class according to the table below. You should ask the user for the magnitude and then round it to one digit after the point using the `round` function.

Class	Magnitude
Great	8 or more
Major	7 – 7.9
Strong	6 – 6.9
Moderate	5 – 5.9
Light	4 – 4.9
Minor	3 -3.9
Not felt	0-2.9

Problem 2:

Ocean waves are classified in many different ways. Below you find a table (taken from Alessandro Toffoli, Elzbieta M. Bitner-Gregersen: Types of Ocean Surface Waves, Wave Classification in Encyclopedia of Maritime and Offshore Engineering, Wiley, 2017) that offers a classification based on the period of the wave. Ask the user for the period and print out the classification. Since the period is given in either seconds or minutes, you need to ask the user for that information as well. Here are two interactions

```
please enter the number: 140
please enter the time measure: seconds
Infragravity waves
```

```
please enter the number: 0.01
please enter the time measure: hours
Infragravity waves
```

Table 1. Ocean Wave Classification

Classification	Period band	Generating forces	Restoring forces
Capillary waves	<0.1 s	Wind	Surface tension
Ultragravity waves	0.1–1 s	Wind	Surface tension and gravity
Gravity waves	1–20 s	Wind	Gravity
Infragravity waves	20 s to 5 min	Wind and atmospheric pressure gradients	Gravity
Long-period waves	5 min to 12 h	Atmospheric pressure gradients and earthquake	Gravity
Ordinary tidal waves	12–24 h	Gravitational attraction	Gravity and Coriolis force
Transtidal waves	>24 h	Storms and gravitational attraction	Gravity and Coriolis force