

### Solution 1.17

Problem 1-16 is reconsidered. The entire software solution is to be printed out, including the numerical results with proper units.

**Analysis** The problem is solved using EES, and the solution is given below.

"The weight of the rock is"

$$W = m \cdot g$$

$$m = 3 \text{ [kg]}$$

$$g = 9.79 \text{ [m/s}^2\text{]}$$

"The force balance on the rock yields the net force acting on the rock as"

$$F_{\text{up}} = 200 \text{ [N]}$$

$$F_{\text{net}} = F_{\text{up}} - F_{\text{down}}$$

$$F_{\text{down}} = W$$

"The acceleration of the rock is determined from Newton's second law."

$$F_{\text{net}} = m \cdot a$$

"To Run the program, press F2 or select Solve from the Calculate menu."

### SOLUTION

$$a = 56.88 \text{ [m/s}^2\text{]}$$

$$F_{\text{down}} = 29.37 \text{ [N]}$$

$$F_{\text{net}} = 170.6 \text{ [N]}$$

$$F_{\text{up}} = 200 \text{ [N]}$$

$$g = 9.79 \text{ [m/s}^2\text{]}$$

$$m = 3 \text{ [kg]}$$

$$W = 29.37 \text{ [N]}$$

m [kg]	a [m/s <sup>2</sup> ]
1	190.2
2	90.21
3	56.88
4	40.21
5	30.21
6	23.54
7	18.78
8	15.21
9	12.43
10	10.21

