

Chapter 0 HW Answers

Review Questions:

5. Fact: Repeated observations have given the same results and all scientists agree to the conclusion.

Hypothesis: An educated guess based on observations and previous knowledge.

Law: A general rule of nature that has been confirmed by repeated experiments and is accepted as an explanation for observed phenomena.

Theory: Encompasses a number of related laws and synthesizes them into a more general rule of nature

Exercise:

2. The hypothesis is partially correct. Plants also need sunlight and water. Thus, an experiment which would verify whether only the soil is needed would be to isolate the plant and its soil.

Additional:

1. $7320 \text{ grams} \times \frac{1 \text{ kilogram}}{1000 \text{ grams}} = 7.32 \text{ kg}$
2. $500 \text{ kilograms} \times \frac{1000 \text{ grams}}{1 \text{ kilogram}} = 500,000 \text{ grams}$
3. a) $93 \text{ million miles} = 93 \times 10^6 \text{ miles} = 9.3 \times 10^7 \text{ miles}$
b) $9.3 \times 10^7 \text{ miles} \times \frac{5280 \text{ feet}}{1 \text{ mi}} \times \frac{12 \text{ inches}}{1 \text{ ft}} = 5.89 \times 10^{12} \text{ inches}$
That is **5,890,000,000,000 inches!**
c) $9.3 \times 10^7 \text{ miles} \times \frac{1.609 \text{ km}}{1 \text{ mi}} = 1.50 \times 10^8 \text{ km}$

4. My height is 5 feet 6 inches.

a) $5 \text{ feet} \times \frac{12 \text{ inches}}{1 \text{ foot}} = 60 \text{ inches}$

Total height = **66 inches**

b) $66 \text{ inches} \times \frac{2.54 \text{ cm}}{1 \text{ inch}} = 167.64 \text{ cm}$

c) $167.64 \text{ cm} = 1.68 \text{ m}$

5. Observation: moving objects always stop for fuel

Hypothesis: fuel is converted into motion

Prediction: moving objects will stop moving without fuel

Experiment: add fuel to a variety of moving objects and observe the motion of these objects as fuel is consumed

6.

Years	Price of Ticket in \$
0	20.00
1	21.40
2	22.90
3	24.50
4	26.22
5	28.06
6	30.02
7	32.12
8	34.37
9	36.78
10	39.35
11	42.10
12	45.05
13	48.20
14	51.57
15	55.18
16	59.04
17	63.17
18	67.59
19	72.32
20	77.38

