1. It takes about .43 as m‑ h heat to warm any amount of spirits of turpentine as it does to warm an equal amount of water through the same range of temperature. If ten pounds of water are warmed from 70° to 120°, how much will the temperature of an equal weight of turpentine be raised under like conditions?

2. The brightness with which any surface is illuminated by a given source of light varies inversely with the square of the distance from that source. One person holds his book 1½ ft. from a 12 candle-power lamp. How far must another hold his book from a 16 candle-power lamp that the page may be as brightly lighted as in the first case?

3. The resistance of 100 yd. of No. 25 copper wire is 7.86 ohms; resistance varies inversely with the square of the diameter of the wire; the diameter of No. 25 wire is .02 in.; the diameter of No. 31 wire is .01 in. What would be the resistance of 10 yd. of No. 31 wire?

4. Resistance varies inversely with the conducting power. The conducting power of copper is 96, that of German silver 7.5. What would be the resistance of pieces of German silver wire of like dimensions in each part of preceding question?

5. The weight of bodies below the earth's surface decreases as distance from the centre decreases. How much will a body weigh 2000 miles below the surface? 3000 miles from the centre of the earth? at the centre?

6. A body weighing at the surface 100^{Kg} is carried below the earth's surface till it weighs only 70^{Kg}. Where is it?

7. As bodies rise above the earth's surface they decrease in weight according to the square of the increase in distance from the earth's centre. How much does a 100 lb. ball weigh 4000 miles above the earth (*i.e.* 8000 miles from the centre)? 12,000 miles from the centre? 16,000 miles from the surface? 8000 miles from the surface? 12,000 miles from the surface?

8. How far away from the earth's surface must a 49 lb. rock be carried to weigh only 1 lb.? (Notice that in the above law the distance is reckoned from the earth's centre.)