

5. *A* and *B* have between them \$1,200; *A* and *C* \$1,400; *B* and *C* \$1,500. How much has each?

GEOMETRY.

Time allowed, 1½ hour.

Examiner H. ASPINWALL HOWE, M.A., LL.D.

1. Draw a straight line perpendicular to a given straight line of an unlimited length from a given point without it.
2. If one side of a triangle be produced, the exterior angle shall be greater than either of the interior opposite angles.
3. Two, and only two, equal straight lines can be drawn from a given point to a given straight line, one on each side of the perpendicular.
4. Equal triangles on the same base and on the same side of it are between the same parallels.
5. If a straight line be divided into two equal and also into two unequal parts, the square of the unequal parts are together double of the square on half the line and of the square on the line between the points of section.

NATURAL PHILOSOPHY.

Time allowed, 1½ hour.

1. What is a *Machine*? and what general laws apply to machines of all kinds?
2. What is *Friction*? Describe a mode of measuring it; and state some facts about it ascertained by experiment.
3. To what height will a body rise that is projected vertically upward with an initial velocity of 64 feet per second, and in how many seconds from the time of projection will it return to the ground?
4. Enunciate what is called the 'Principle of Archimedes,' and give some explanation.
5. A solid body, weighing 24 ounces in air, weighs 15 oz. in *ether*, and 11½ ounces in water. Find the specific gravity of the solid and also of the ether, first stating the hydrostatic principle on which the solving of the problem depends.