II. *The distances of the Planets from the Sun being*
given, to find the proportional degrees of Light
and Heat which they derive from the Sun; his
apparent degrees of Magnitude, as seen from
them; and the Circumferences of their Orbits or
Paths round the Sun.

I. The degrees of light and heat derived from
the Sun, and his apparent magnitude, diminish as
the squares of the distances increase; from which
the required proportion may be determined.—
2. Multiply the diameter of any planet's orbit (or
twice its distance from the Sun) by 3.1416; the
product is the orbit's circumference nearly. The
same may be found by the proportion given in a
note to the preceding problem *.

III. *To find the Rate of Motion, per Hour or Mi-*
nute, of a Planet, in its Orbit, or that of any Point
on its surface, caused by its Diurnal Motion.

Divide the circumference of the Planet's orbit,
by its annual period in hours or minutes; the quo-
tient will be the Planet's rate of motion, per hour
or minute, in its orbit nearly.—2. Divide the cir-
cumference of the planet itself, by its diurnal pe-
riod, in hours or minutes, and you will have the
rate at which any point in its Equator moves, per
hour or minute.—For any other point, having its
latitude given, Find the degree of latitude in the

* The distances of the planets, Mercury, Venus, the Earth, &c.
from the Sun, are to one another, nearly as the numbers 12, 23, 32,
48, 65, 303, 605; or, with less exactness, as the number 1, 2, 3, 4,
14, 25 50. In solving the first part of the problem, these numbers
may be used instead of the real distances.—Hence it will be found,
that the light, heat, and apparent magnitude of the Sun, are, at
Mercury, about 7 times as great as to us; while, to us, they are
about 360 times as great as at the Georgium Sidus.