

lines AB, CD parallel straight lines Aa, Bb, Cc, Dd are drawn meeting a plane at a, b, c, d : shew that AB is to CD as ab to cd .

430. Shew that the perpendicular drawn from the vertex of a regular tetrahedron on the opposite face is three times that drawn from its own foot on any of the other faces.

431. A triangular pyramid stands on an equilateral base and the angles at the vertex are right angles: shew that the sum of the perpendiculars on the faces from any point of the base is constant.

432. Three straight lines not in the same plane intersect at a point, and through their point of intersection another straight line is drawn within the solid angle formed by them: shew that the angles which this straight line makes with the first three are together less than the sum, but greater than half the sum, of the angles which the first three make with each other.

433. Three straight lines which do not all lie in one plane, are cut in the same ratio by three planes, two of which are parallel: shew that the third will be parallel to the other two, if its intersections with the three straight lines are not all in the same straight line.

434. Draw two parallel planes, one through one straight line, and the other through another straight line which does not meet the former.

435. If two planes which are not parallel be cut by two parallel planes, the lines of section of the first two by the last two will contain equal angles.

436. From a point A in one of two planes are drawn AB at right angles to the first plane, and AC perpendicular to the second plane, and meeting the second plane at B, C : shew that BC is perpendicular to the line of intersection of the two planes.

437. Polygons formed by cutting a prism by parallel planes are equal.

438. Polygons formed by cutting a pyramid by parallel planes are similar.

439. The straight line $PBbp$ cuts two parallel planes at B, b , and the points P, p are equidistant from the planes; PAa, pcC are other straight lines drawn from P, p to cut the planes: shew that the triangles ABC, abc are equal.

440. Perpendiculars AE, BF are drawn to a plane

from two
A perpendicular
with the

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shew that
the sides

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to BS .

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-447. A
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given straight
of AP and