

448. Shew that by superposition the first case of I. 26 may be immediately demonstrated, and also the second case with the aid of I. 16.

449. A straight line is drawn terminated by one of the sides of an isosceles triangle, and by the other side produced, and bisected by the base: shew that the straight lines thus intercepted between the vertex of the isosceles triangle and this straight line, are together equal to the two equal sides of the triangle.

450. Through the middle point M of the base BC of a triangle a straight line DME is drawn, so as to cut off equal parts from the sides AB , AC , produced if necessary: shew that BD is equal to CE .

451. Of all parallelograms which can be formed with diameters of given lengths the rhombus is the greatest.

452. Shew from I. 18 and I. 32 that if the hypotenuse BC of a right-angled triangle ABC be bisected at D , then AD , BD , CD are all equal.

453. If two equal straight lines intersect each other any where at right angles, the quadrilateral formed by joining their extremities is equal to half the square on either straight line.

454. Inscribe a parallelogram in a given triangle, in such a manner that its diagonals shall intersect at a given point within the triangle.

455. Construct a triangle of given area, and having two of its sides of given lengths.

456. Construct a triangle, having given the base, the difference of the sides, and the difference of the angles at the base.

457. AB , AC are two given straight lines: it is required to find in AB a point P , such that if PQ be drawn perpendicular to AC , the sum of AP and AQ may be equal to a given straight line.

458. The distance of the vertex of a triangle from the bisection of its base, is equal to, greater than, or less than half of the base, according as the vertical angle is a right, an acute, or an obtuse angle.

459. If in the sides of a given square, at equal distances from the four angular points, four other points be taken, one on each side, the figure contained by the straight lines which join them, shall also be a square.

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