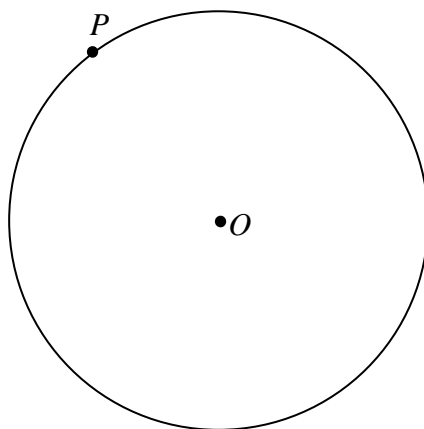


CONSTRUCTIONS: Set B
Due Date: December 8, 2011

1. Construct a tangent to a circle at a point on the circle.

Given: $\odot O$ and point P on the circle (see below)

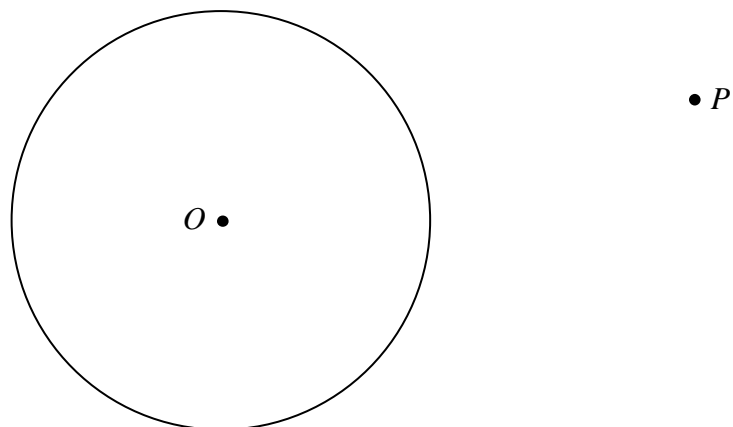
Construct: Tangent line l on $\odot O$ at point P



2. Construct a tangent to a circle from an external point.

Given: $\odot O$ and an external point P

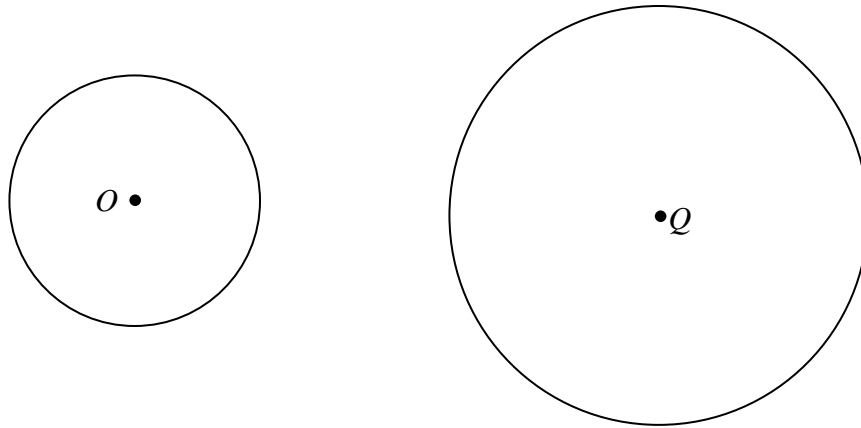
Construct: Tangent line m to $\odot O$ through point P



3. Construct a common external tangent to two given circles that are not congruent.

Given: $\odot O$ and $\odot Q$ (see below)

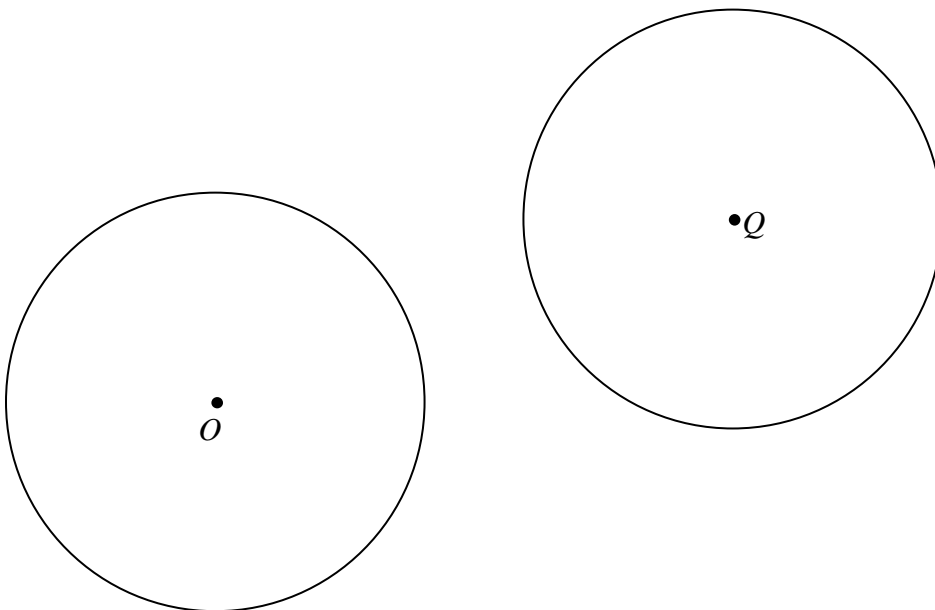
Construct: Common external tangent l to $\odot O$ and $\odot Q$



4. Construct a common external tangent to two congruent circles.

Given: $\odot O$ and $\odot Q$ (see below)

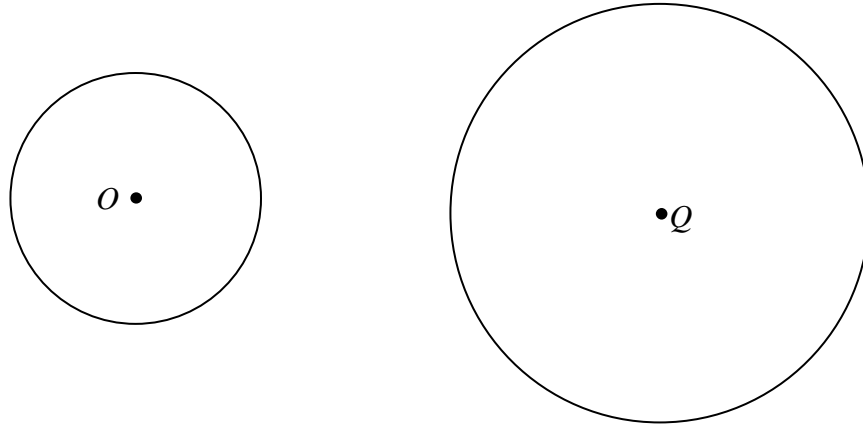
Construct: Common external tangent m to $\odot O$ and $\odot Q$



5. Construct a common internal tangent to two given circles that are not congruent.

Given: $\odot O$ and $\odot Q$ (see below)

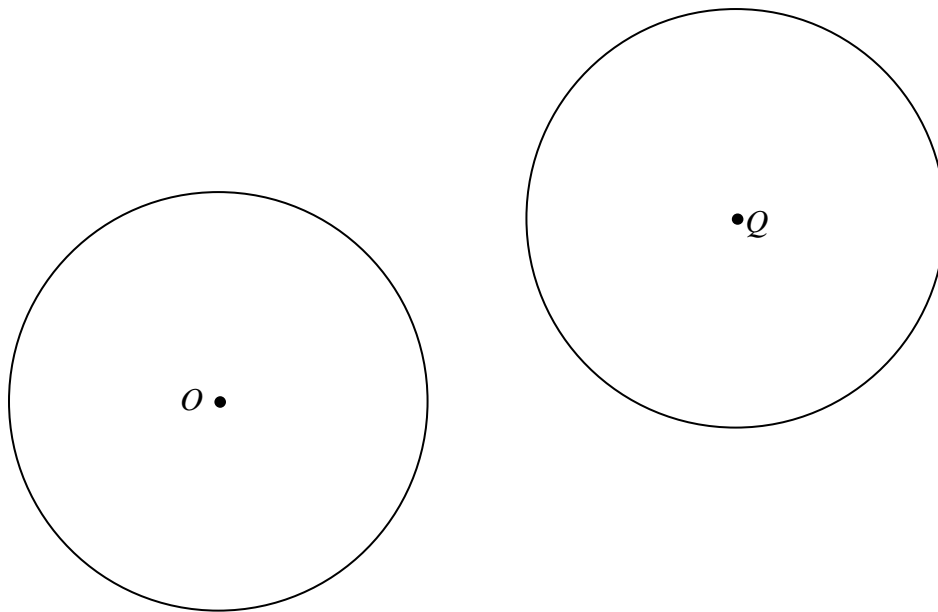
Construct: Common internal tangent l to $\odot O$ and $\odot Q$



6. Construct a common internal tangent to two congruent circles.

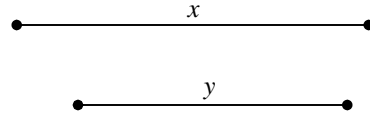
Given: $\odot O$ and $\odot Q$ (see below)

Construct: Common internal tangent m to $\odot O$ and $\odot Q$



7. Construct a segment whose length is the geometric mean of the lengths of two given segments.

Given: Two segments of given lengths:

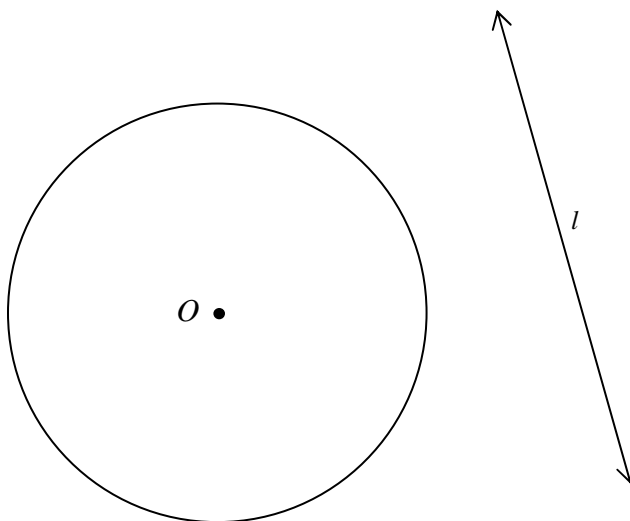


Construct: Segment \overline{CD} whose length is the geometric mean of x and y .

8. Given $\odot O$ and a line l (not intersecting the circle), construct a line that is parallel to line l and tangent to $\odot O$.

Given: $\odot O$ and line l (see below)

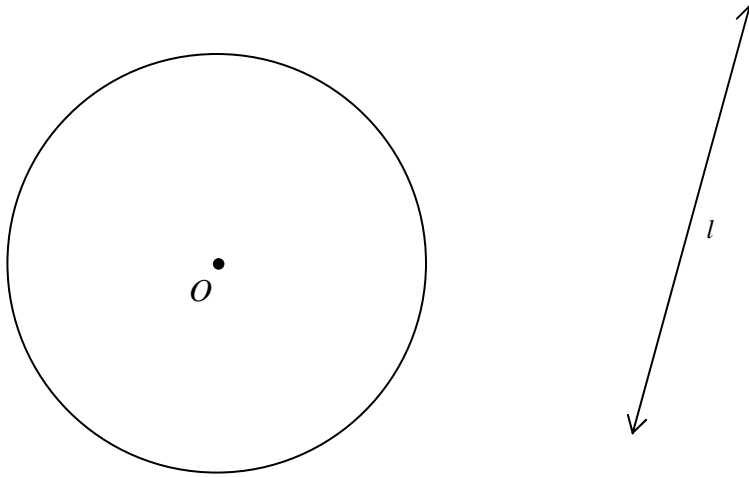
Construct: Line m tangent to $\odot O$ and $m \parallel l$



9. Given $\odot O$ and a line l (not intersecting the circle), construct a line that is perpendicular to line l and tangent to $\odot O$.

Given: $\odot O$ and line l (see below)

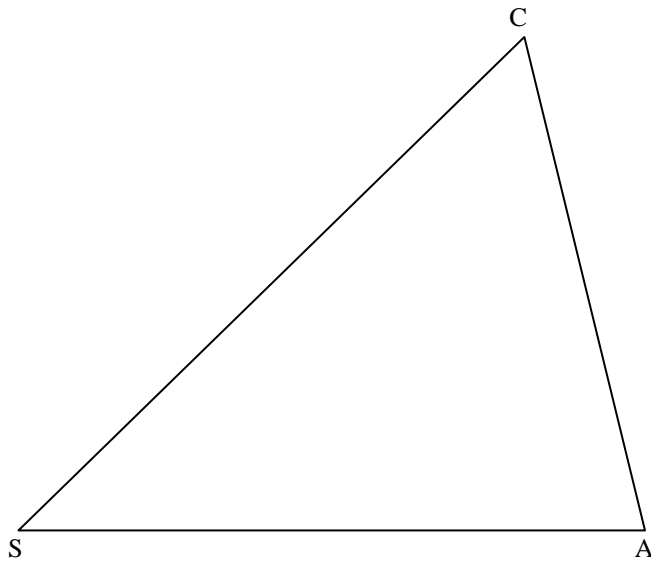
Construct: Line m tangent to $\odot O$ and $m \perp l$



10. Construct a circle that is circumscribed about a given scalene triangle.

Given: Scalene $\triangle SCA$ (see below)

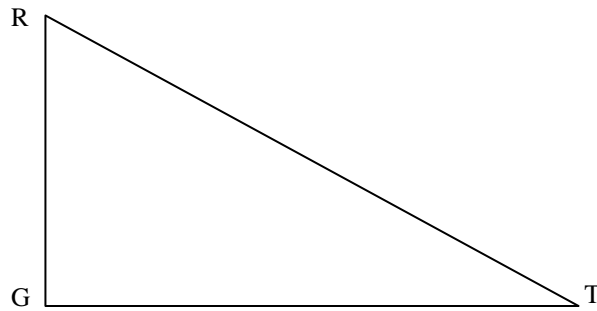
Construct: Circle circumscribed about $\triangle SCA$



11. Construct a circle that is inscribed in a given right scalene triangle.

Given: Right scalene $\triangle RGT$ (see below)

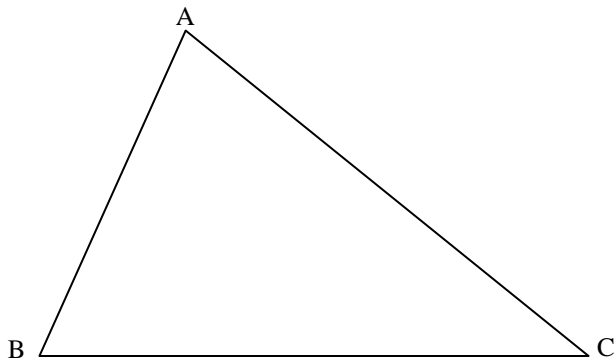
Construct: Circle inscribed in $\triangle RGT$



12. Construct the orthocenter of an acute scalene triangle.

Given: Acute scalene $\triangle ABC$ (see below)

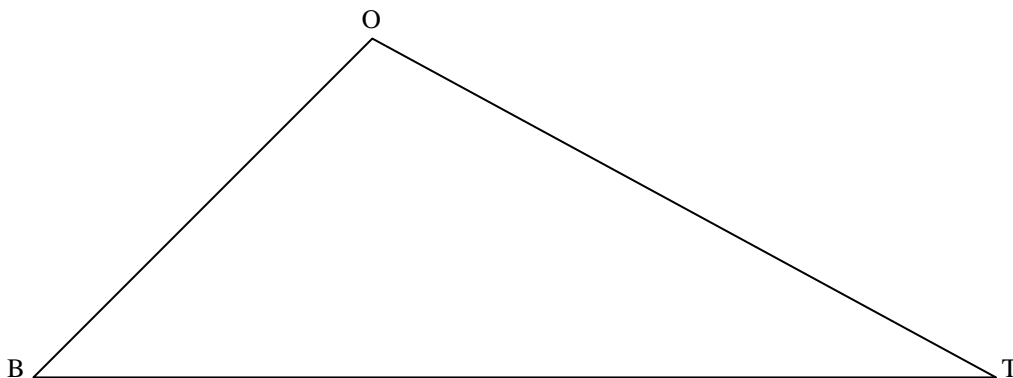
Construct: The orthocenter P of $\triangle ABC$



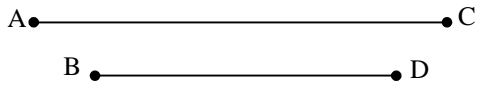
13. Construct the centroid of a scalene obtuse triangle.

Given: Scalene obtuse $\triangle OBT$ (see below)

Construct: The centroid C of $\triangle OBT$



14. Construct a rhombus ABCD given its (non-congruent) diagonals \overline{AC} and \overline{BD} .

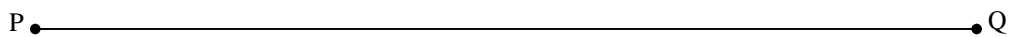
Given: Diagonals of rhombus ABCD: 

Construct: Rhombus ABCD with diagonals \overline{AC} and \overline{BD}

15. Divide a given segment into five congruent segments.

Given: Line segment \overline{PQ} (see below)

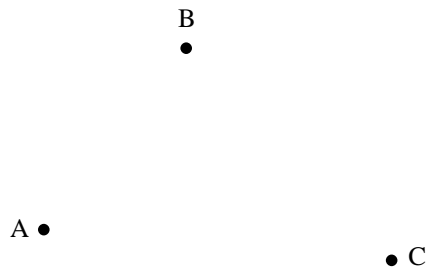
Construct: Divide \overline{PQ} into five congruent segments



16. Construct a circle through three given noncollinear points.

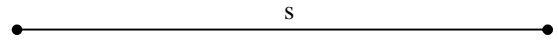
Given: Three noncollinear points A, B, and C (see below)

Construct: The circle through A, B, and C



17. Construct a square of given length and construct its circumscribed and inscribed circles.

Given: Length of square SQRE

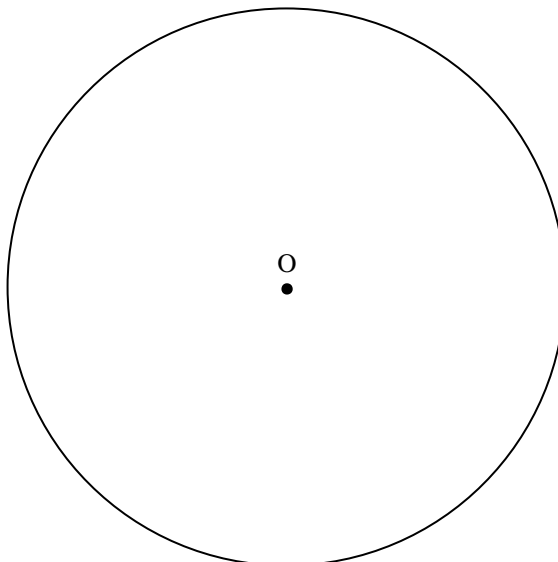


Construct: Square SQRE, circumscribed circle about square SQRE and inscribed circle of square SQRE

18. Construct an inscribed equilateral triangle of given circle.

Given: $\odot O$ (see below)

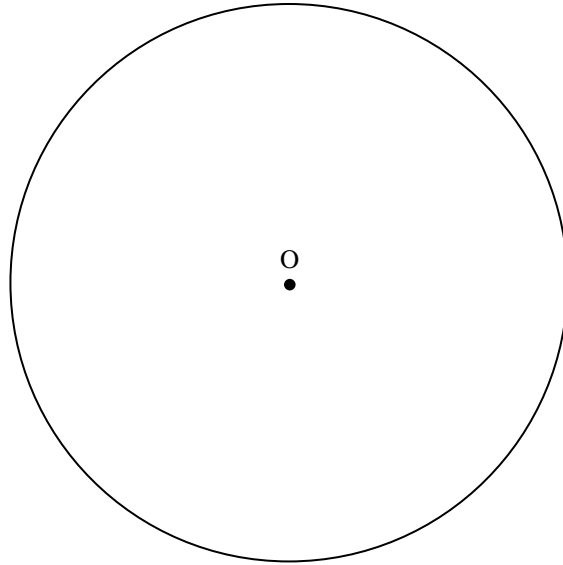
Construct: Inscribed equilateral $\triangle EQI$ of $\odot O$



19. Construct an inscribed square of a given circle.

Given: $\odot O$ (see below)

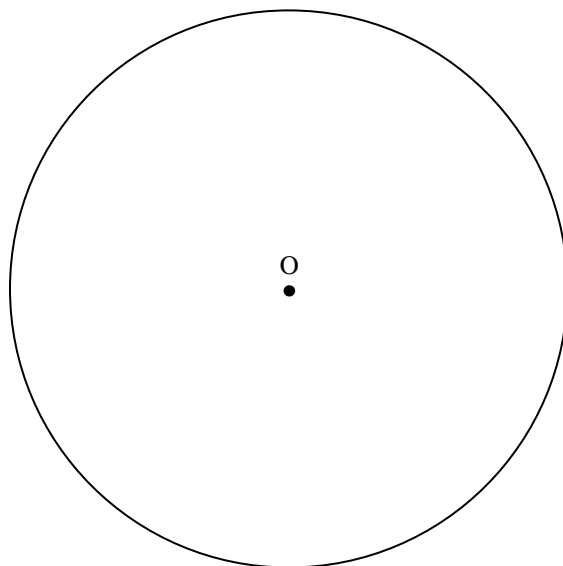
Construct: Inscribed square SPNJ of $\odot O$



20. Construct an inscribed hexagon of a given circle.

Given: $\odot O$ (see below)

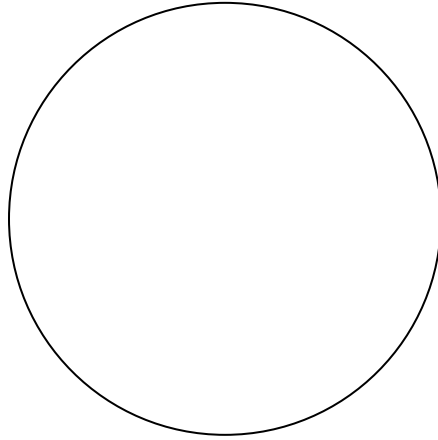
Construct: Inscribed hexagon HEXAGN of $\odot O$



21. Construct the center of a given circle.

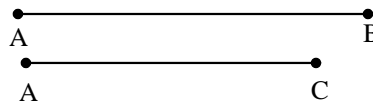
Given: Circle (see below)

Construct: Center O of the circle



22. Construct a rhombus ABCD given side \overline{AB} and one diagonal \overline{AC} .

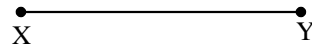
Given: Segments as given



Construct: Rhombus ABCD with side \overline{AB} and diagonal \overline{AC}

23. Construct an equilateral triangle given the length of an altitude.

Given: Segment \overline{XY}

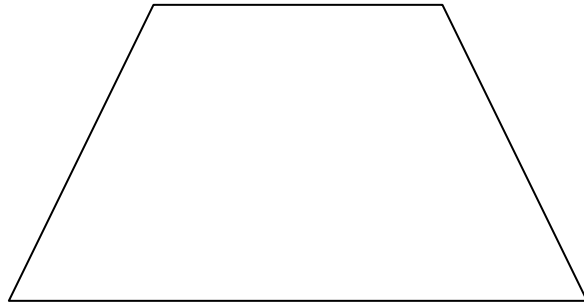


Construct: Equilateral $\triangle ABC$ with altitude congruent to \overline{XY}

24. Given an isosceles trapezoid, construct its circumscribed circle.

Given: Isosceles Trapezoid (see below)

Construct: Circumscribed circle about trapezoid



25. Given a kite, construct its inscribed circle.

Given: Kite (see below)

Construct: Inscribed Circle

