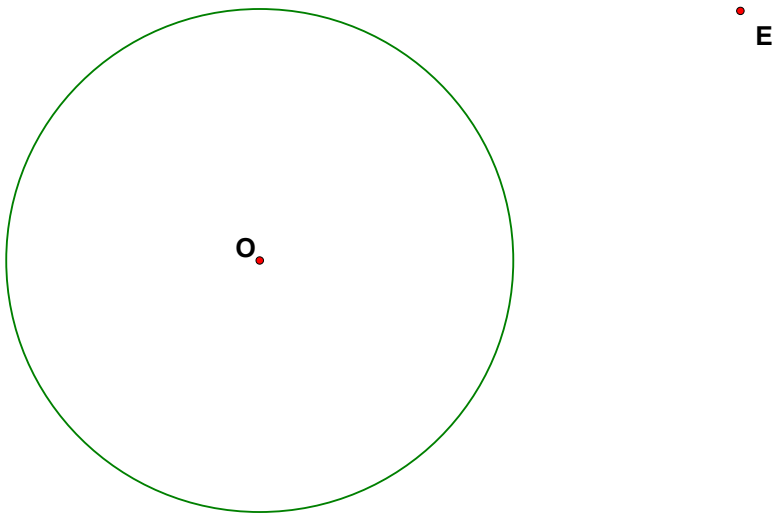


Construction Portfolio Part 2

Carry out these constructions, each one on a separate side of paper.

14. External Tangents

Given a circle c with center O , E is a point outside the circle. Construct two points S and T on the circle so that ES and ET are tangent to c . Construct F as the intersection of ST and OE .



Answer this: Let $OE = d$ and let the radius of the circle be r . At the bottom of the page, compute the length OF as an expression in d and r .

15. Right Triangle from Hypotenuse

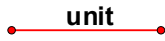
Point D is on segment AB . Construct a point C so that ABC is a right triangle with hypotenuse AB , so that D is the foot of the altitude through C .



Let $x = |AD|$ and $y = |BD|$, then if $h = |CD|$, write h as an expression in x and y

16. Geometric Mean

Given this segment of unit length. Construct a segment of length $\sqrt{7}$, using Construction 14 as the method.



17. Half-Area Triangle

Given a triangle ABC, construct points E on AB and F on AC so that EF is parallel to BC and $\text{area } AEF = \frac{1}{2} \text{ area } ABC$.

