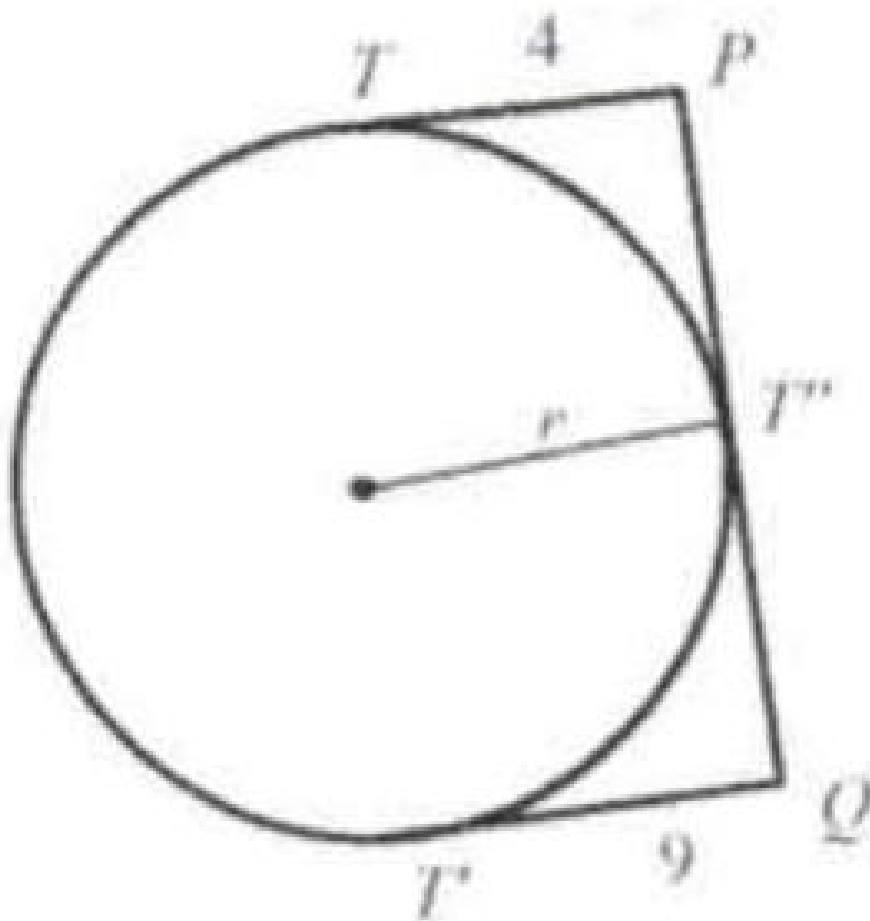# Problem
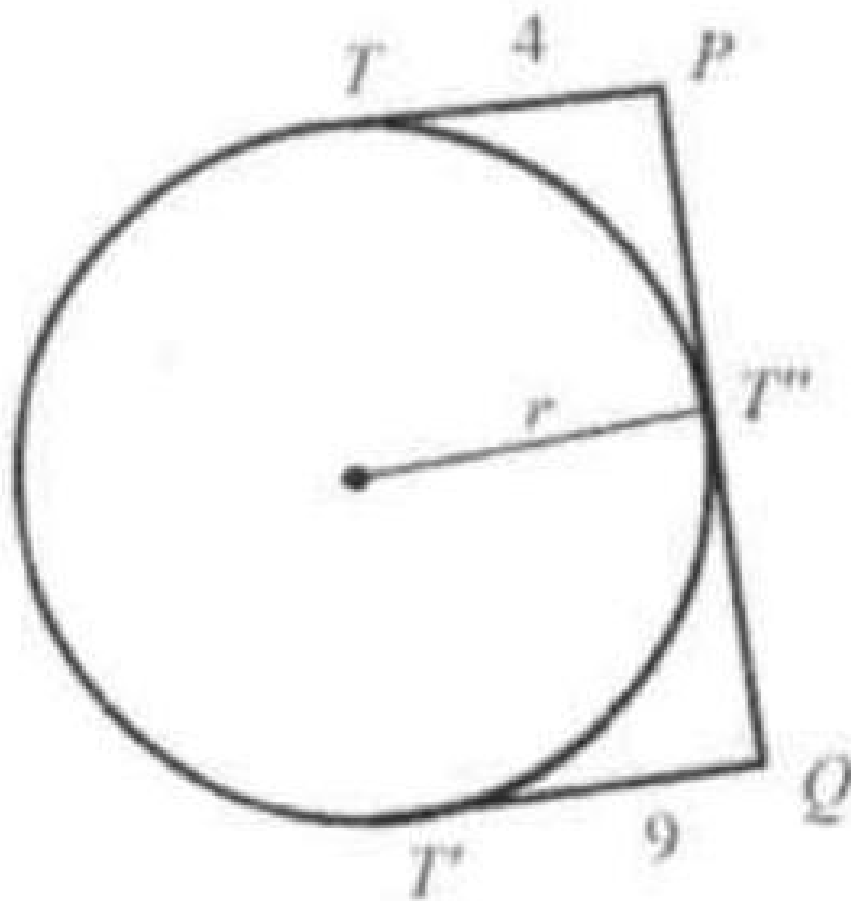
(AMC) In the adjoining figure TP and $T'Q$ are parallel tangents to a circle of radius r, with T and T' the points of tangency. $PT''Q$ is a third tangent with T'' as point of tangency. If $TP = 4$ and $T'Q = 9$ then r is

(A) 25/6 (B) 6 (C) 25/4

(D) a number other than $25/6, 6, 25/4$
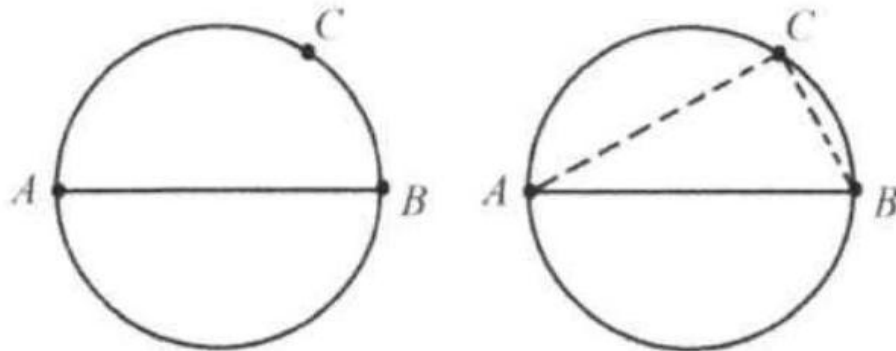
(E) not determinable from the given information

Solution
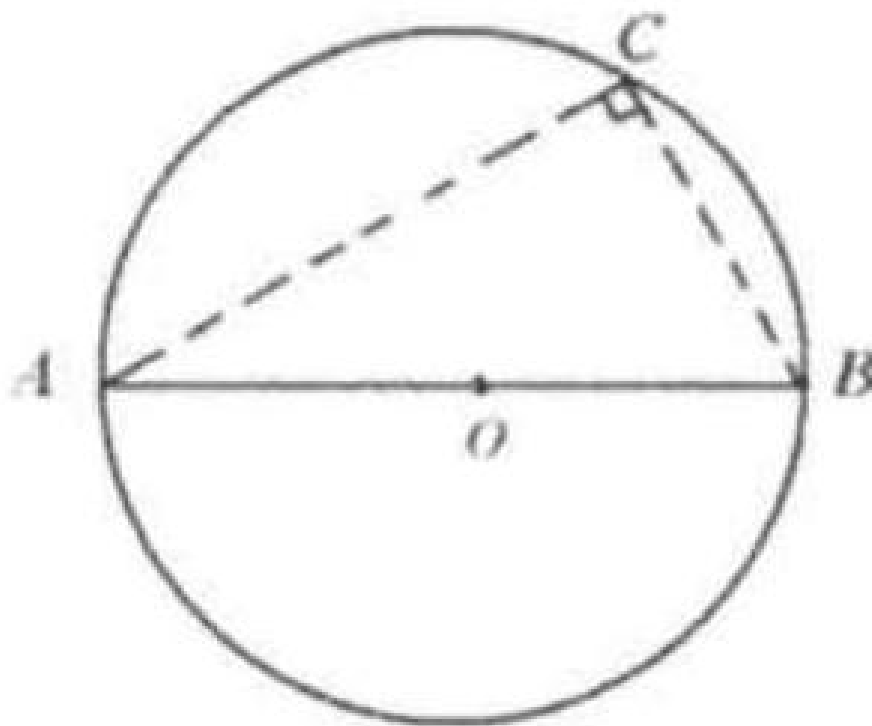
(B).

$$r = \sqrt{TP \times T'Q} = \sqrt{4 \times 9} = 6$$

2. Draw the line segments connecting special points on the circumference 2.1.
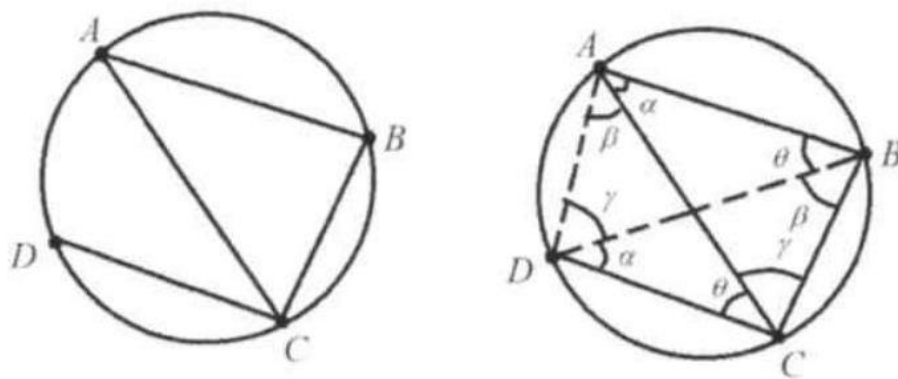AB is the diameter. Connect AC and BC. We have $\angle C = 90°$.

Theorem 6.7a. An angle inscribed in a semicircle is a right angle.
Theorem 6.7b. The measure of an inscribed angle equals one-half the measure

of its intercepted arc. $\angle C = \frac{180°}{2} = 90°$

2.2. ABC is a triangle. D is a point on the circumference. Connect DB, DA. We have $\angle BAC = \angle BDC = \alpha$; $\angle DAC = \angle DBC = \beta$; $\angle ADB = \angle ACB = \gamma$, $\angle ACD = \angle ABD = \theta$.

Theorem 6.8. In the same or congruent circles, congruent inscribed angles have congruent intercepted arcs.