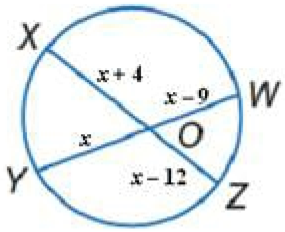
10-7 Special Segments in a Circle

Find *x* to the nearest tenth. Assume that segments that appear to be tangent are tangent.

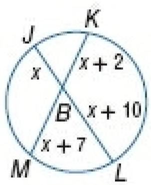
8.



ANSWER:

48

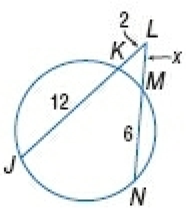
9.



ANSWER:

14

11.

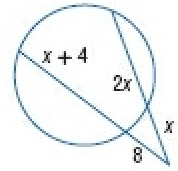


ANSWER:

3.1

CCSS STRUCTURE Find each variable to the nearest tenth. Assume that segments that appear to be tangent are tangent.

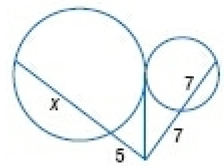
17.



ANSWER:

7.1

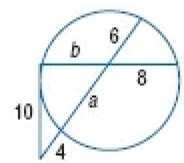
18.



ANSWER:

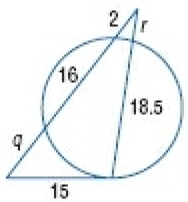
14.6

19.



ANSWER:

$a = 15; b \approx 11.3$

20. 

ANSWER:

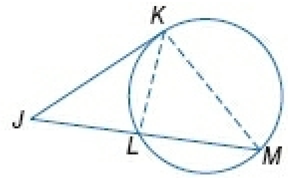
$q = 9$; $r \approx 1.8$

PROOF Prove each theorem.

25. two-column proof of Theorem 10.17

Given: tangent $\overline{JK}$, secant $\overline{JM}$

Prove: $JK^2 = JL \cdot JM$



ANSWER:

Proof:

Statements (Reasons)

1. tangent $\overline{JK}$ and secant $\overline{JM}$ (Given)
2. $m\angle KML = \frac{1}{2} m\widehat{KL}$ (The measure of an inscribed $\angle$ equals half the measure of its intercept arc.)
3. $m\angle JKL = \frac{1}{2} m\widehat{KL}$ (The measure of an $\angle$ formed by a secant and a tangent = half the measure of its intercepted arc.)
4. $m\angle KML = m\angle JKL$ (Substitution)
5. $\angle KML \cong \angle JKL$ (Definition of $\cong \angle s$)
6. $\angle J \cong \angle J$ (Reflexive Property)
7. $\Delta JMK \sim \Delta JKL$ (AA Similarity)
8. $\frac{JK}{JL} = \frac{JM}{JK}$ (Definition of $\sim \Delta s$)
9. $JK^2 = JL \cdot JM$ (Cross products)