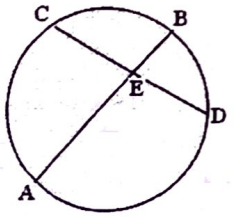
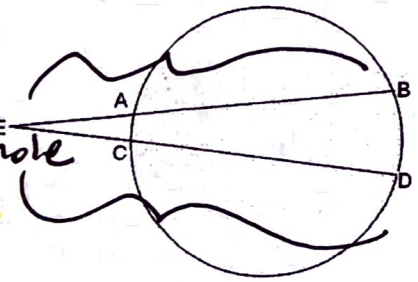
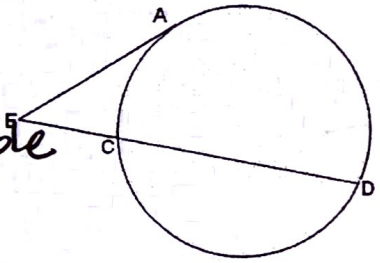
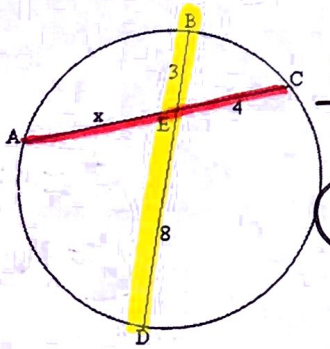
P.21

Unit 6A Day 4: Segments in Circles

Segments of Chords If two chords intersect in the interior of a circle, then the product of the lengths of the segments of one chord is equal to the product of the lengths of the segments of the other chord.	$AE \cdot EB = CE \cdot ED$ part · part = part · part	
Segments of Secants If two secant segments share the same endpoint outside a circle, then the product of the lengths of one secant segment and its external segment equals the product of the lengths of the other secant segment and its external segment.	$EA \cdot EB = EC \cdot ED$ outside · whole = outside · whole part · whole = part · whole	
Segments of Secants and Tangents If a secant segment and a tangent segment share an endpoint outside a circle, then the product of the lengths of the secant segment and its external segment equals the square of the length of the tangent segment.	$EA^2 = CE \cdot ED$ $\text{tangent}^2 = \text{outside} \cdot \text{whole}$ part	

EXAMPLES: Solve for x

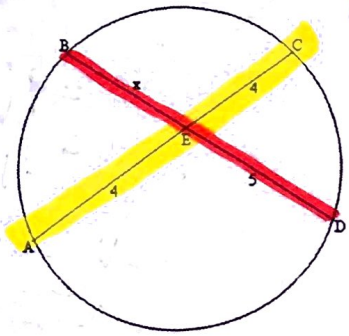
a. $8 \cdot 3 = 4 \cdot x$



$\frac{24}{4} = \frac{4x}{4}$

$x = 6$

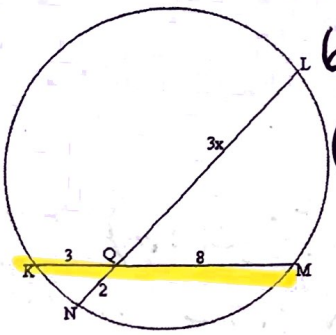
b. $4 \cdot 4 = 5 \cdot x$



$16 = 5x$

$x = \frac{16}{5}$

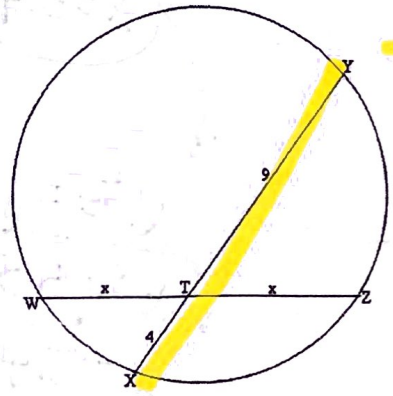
c. $2 \cdot 3x = 3 \cdot 8$



$6x = 24$

$x = 4$

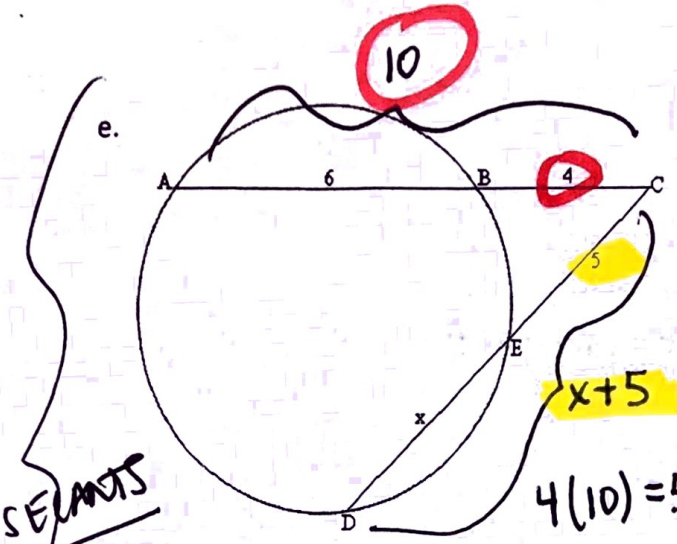
d. $4 \cdot 9 = x \cdot x$



$36 = x^2$

$x = 6$

e.



2 SEGMENTS

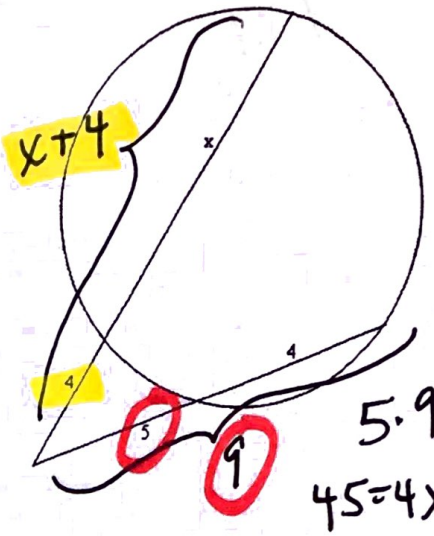
$4(10) = 5(x+5)$

$40 = 5x + 25$

$15 = 5x$

$x = 3$

f.



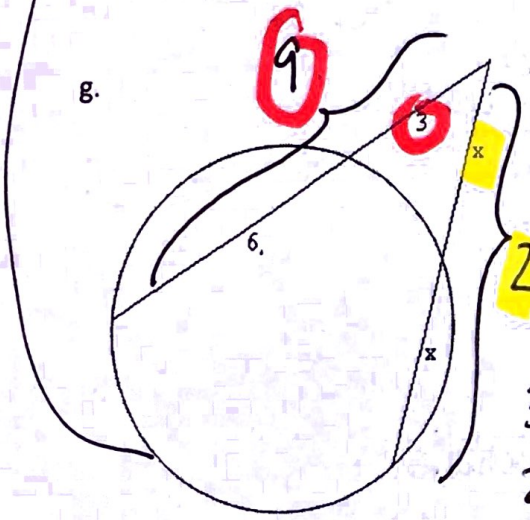
$5 \cdot 9 = 4(x+4)$

$45 = 4x + 16$

$\frac{29}{4} = \frac{4x}{4}$

$x = 7.25$

g.



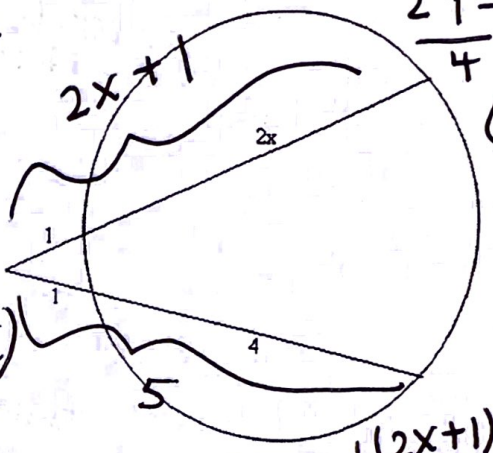
$3 \cdot 9 = x(2x)$

$\frac{27}{2} = \frac{2x^2}{2}$

$\sqrt{13.5} = \sqrt{x^2}$

$x = 3.67$

h.



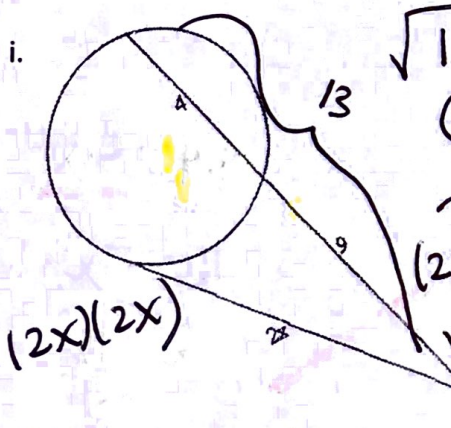
$1(2x+1) = 1(5)$

$2x + 1 = 5$

$2x = 4$

$x = 2$

i.



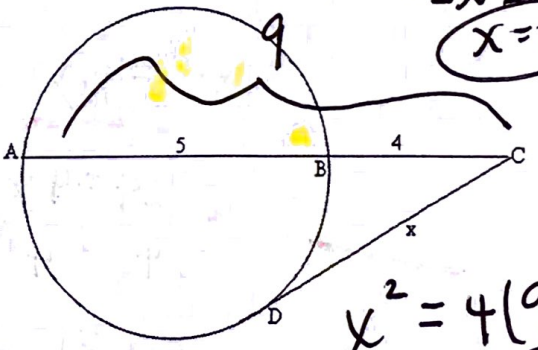
$(2x)^2 = 9(13)$

$\frac{4x^2}{4} = \frac{117}{4}$

$\sqrt{x^2} = \sqrt{29.25}$

$x = 5.4$

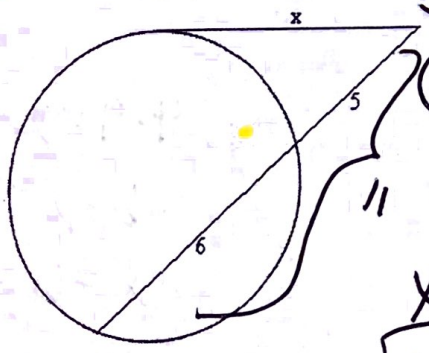
j.



$x^2 = 4(9)$

$x^2 = 36$ $x = 6$

k.

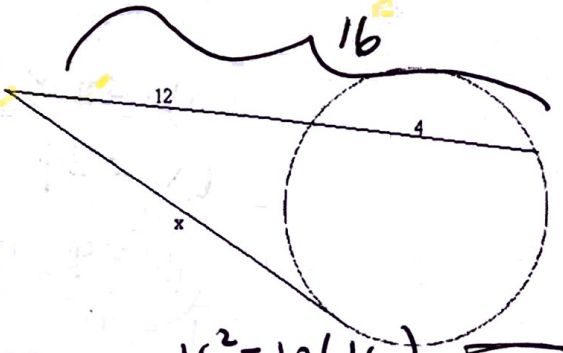


$\frac{x^2}{} = \frac{5(11)}{}$

$\sqrt{x^2} = \sqrt{55}$

$x = 7.42$

l.



$x^2 = 12(16)$

$\sqrt{x^2} = \sqrt{192}$ $x = 13.86$