Exam 3 – Part II: Chapters 6 & 7 **NAME** _____

Math 97, Geometry, Section 3385

Fall 2009: Michael Orr

100 points total (30 pts Part I & 70 pts Part II)

Show all work to receive full credit. You may use a calculator. CHECK YOUR WORK!!!!

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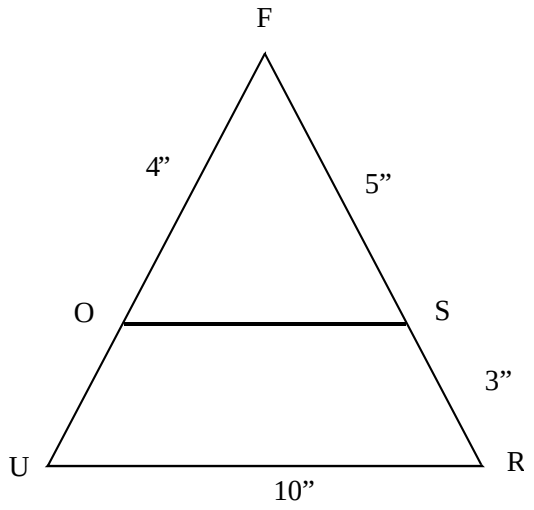
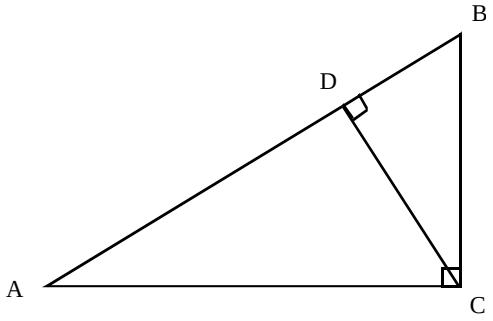
1. (8 pts) Given the figure shown below with $OS \| UR$, find the following:

A. *OS*

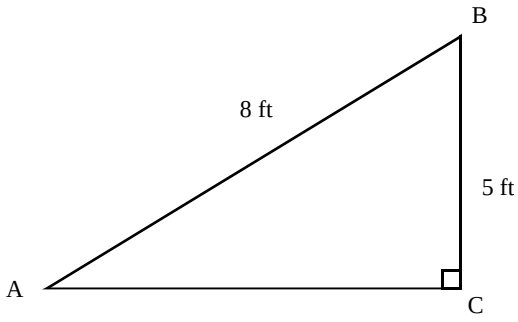
B. *OU*



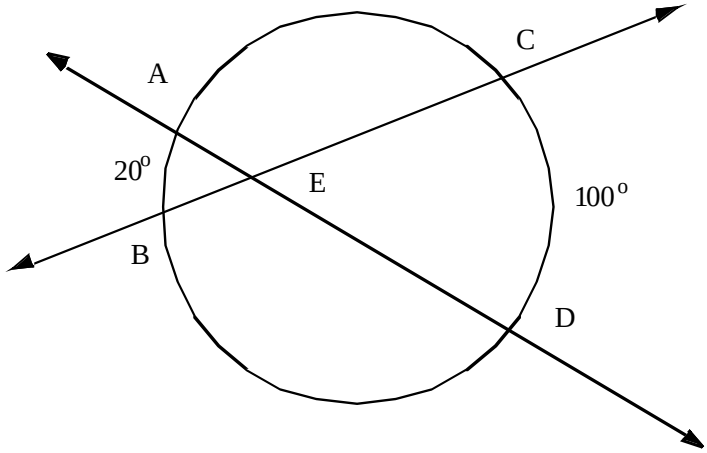
2. (6 pts) In $\triangle ABC$, if $AD = 24$ and $CD = 16$, find BD.



3. (8 pts) Given $\triangle ABC$ shown below. Find the ***exact*** length of the missing side. Also find $m\angle A$.



4. (8 pts) Use the circle and secants to answer the following.



A. What is the measure of $\angle AEC$?

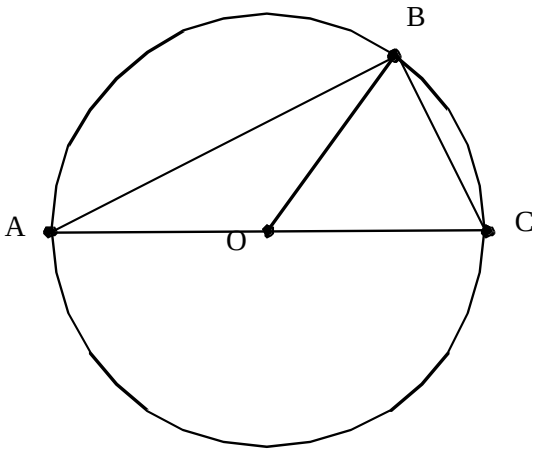
B. If $AE = 4''$, $DE = 10''$, and $BE = 5''$, find CE.

5. (8 pts) An escalator is 508 feet long and the angle it forms with the horizontal is 32^o. What is the vertical distanced traveled if a passenger rides from the bottom to the top of the escalator? Round to the nearest tenth.

6. (8 pts) Suppose $\triangle ABC \sim \triangle DEF$, $AB = 5\,\text{cm}$, $BC = 9\,\text{cm}$, and $DE = 35\,\text{cm}$. Find EF.

7. (8 pts) Points A, B, and C are on circle O, as shown. $AC = 18\,\text{inches}$ and $m\angle AOB = 140^\circ$.

A. Find BC.

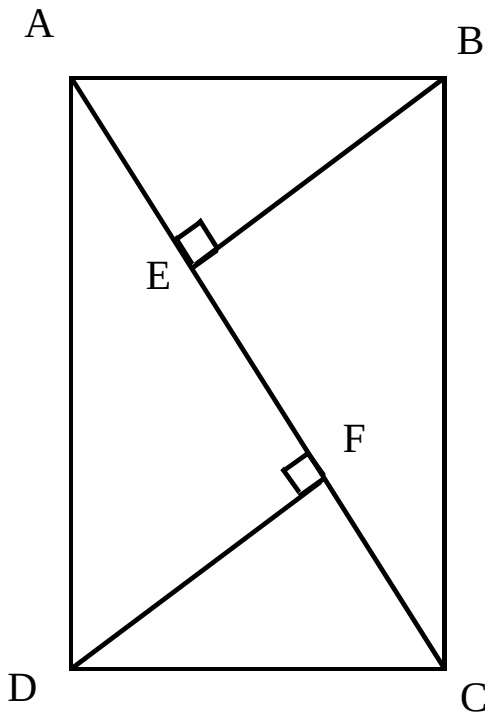


B. Find $m\angle OBC$.

8. (16 pts) Given the figure shown below. Points *E* and *F* trisect diameter *AC*. Suppose *AC* = 18 inches.

Find:

A. Find the exact length of *BC*.



B. Find the exact length of *AB*.

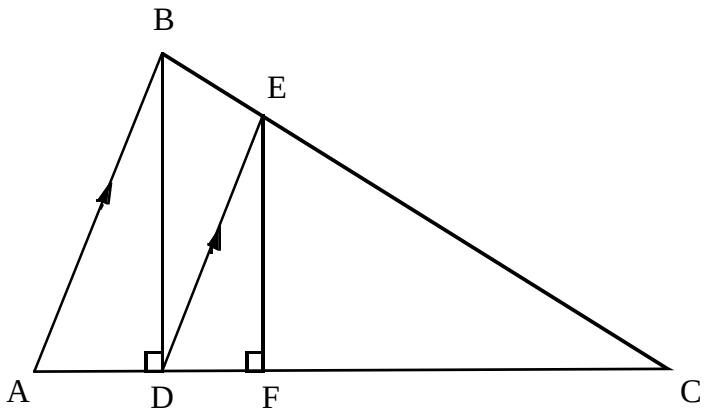
C. Find the exact ratio of $\frac{BC}{AB}$.

D. Find the area of the rectangle *ABCD* to the nearest square inch.

BONUS *(total of **10 e**xtra points)*

In $\triangle ABC$, $BD \perp AC$, $EF \perp AC$, and $AB \parallel DE$. $BD = 40$, $AD = 16$, and $EF = 30$.

Find the following:



DF

CF

$\dfrac{AB}{DE}$

$Area\ of\ \triangle ABC$

$\dfrac{Area\ of\ \triangle ABD}{Area\ of\ \triangle DEF}$