

Math 206 - Quiz 7

November 3, 2010

Name key

Score _____

Show all work to receive full credit. Supply explanations when necessary.

1. (2 points) One angle measures $21^\circ 35' 31''$. A second angle measures $49^\circ 51' 32''$.

(a) Find the sum of the measures of the angles. Then convert your answer to degrees in decimal form.

$$\begin{array}{r} 49^\circ 51' 32'' \\ + 21^\circ 35' 31'' \\ \hline \end{array}$$

$$\frac{27'}{1} \times \frac{1^\circ}{60'} = 0.45^\circ$$

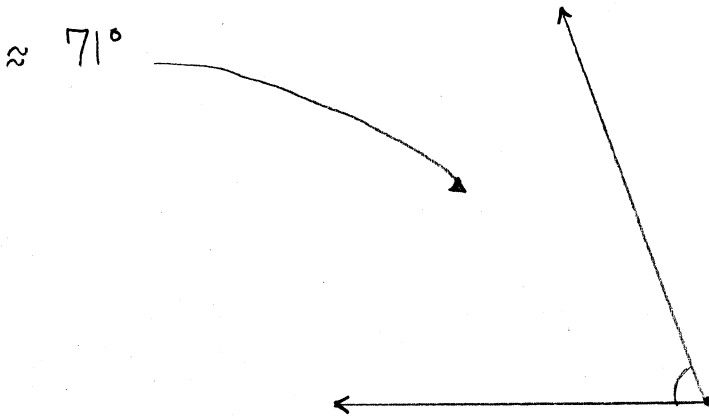
$$\frac{3''}{1} \times \frac{1^\circ}{3600''} = 0.0008\bar{3}$$

$$70^\circ 86' 63''$$

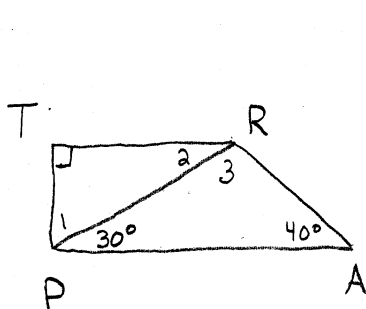
$$\Rightarrow 70^\circ 87' 3'' \Rightarrow 71^\circ 27' 3''$$

$$= \boxed{71.4508\bar{3}^\circ}$$

(b) Round your decimal answer above to the nearest whole degree. Then use your protractor to sketch an angle with that measure.



2. (1 point) Problem 11-3A, #14. Explain your reasoning.



$$\overleftrightarrow{TR} \parallel \overleftrightarrow{PA}$$

② \overleftrightarrow{TR} AND \overleftrightarrow{PA} ARE PARALLEL LINES CUT BY TRANSVERSAL $\overleftrightarrow{PR} \Rightarrow$ ALT INT \angle 's ARE CONG.

$$\Rightarrow \boxed{m(\angle 2) = 30^\circ}$$

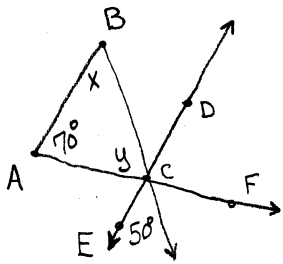
① ANGLES OF $\triangle TRP$ ADD UP TO 180°
 $\Rightarrow 90^\circ + m(\angle 2) + m(\angle 1) = 180^\circ \Rightarrow \boxed{m(\angle 1) = 60^\circ}$

③ $m(\angle 3) + 30^\circ + 40^\circ = 180^\circ \Rightarrow \boxed{m(\angle 3) = 110^\circ}$

3. (1 point) Problem 11-3B, #2. Explain your reasoning.

(a)

$$\overleftrightarrow{AB} \parallel \overleftrightarrow{CD}$$



$\overleftrightarrow{AB} \parallel \overleftrightarrow{CD}$ WITH
TRANSVERSAL \overleftrightarrow{AC}

\Rightarrow ALT INT \angle 's ARE CONG.

$$\Rightarrow m(\angle ACE) = 70^\circ$$

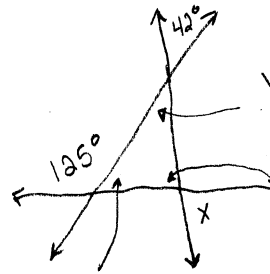
VERTICAL \angle 's $\Rightarrow m(\angle DCF) = 70^\circ$

$$\Rightarrow m(\angle CBD) = 50^\circ$$

$$y + 50^\circ + 70^\circ = 180^\circ \Rightarrow y = 60^\circ$$

$$x + 70^\circ + 60^\circ = 180^\circ \Rightarrow x = 50^\circ$$

(b)



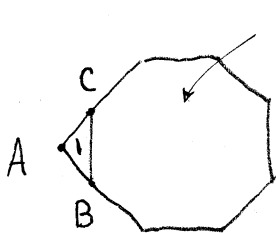
STEP 2
Supplementary
 \angle 's $\Rightarrow 55^\circ$

STEP 1
VERTICAL \angle 's
 $\Rightarrow 42^\circ$

STEP 3
 $55^\circ + 42^\circ + ? = 180^\circ$
 $? = 83^\circ$

VERTICAL \angle 's
 $\Rightarrow x = 83^\circ$

4. (1 point) Problem 11-3B, #7. Explain your reasoning.



REGULAR OCTAGON

$$\Rightarrow \text{EACH INTERIOR } \angle \text{ MEASURES } \frac{180^\circ(8-2)}{8} = 135^\circ$$

$$m(\angle ABC) + 135^\circ = 180^\circ$$

$$m(\angle ACB) + 135^\circ = 180^\circ$$

$$\Rightarrow m(\angle ABC) = m(\angle ACB) = 45^\circ$$

$$m(\angle 1) = m(\angle BAC) = 180^\circ - 45^\circ - 45^\circ$$

$$\Rightarrow m(\angle 1) = 90^\circ$$