

PART α EXAM III

NAME: _____

(Please Print)

(50 points and 4 pages)

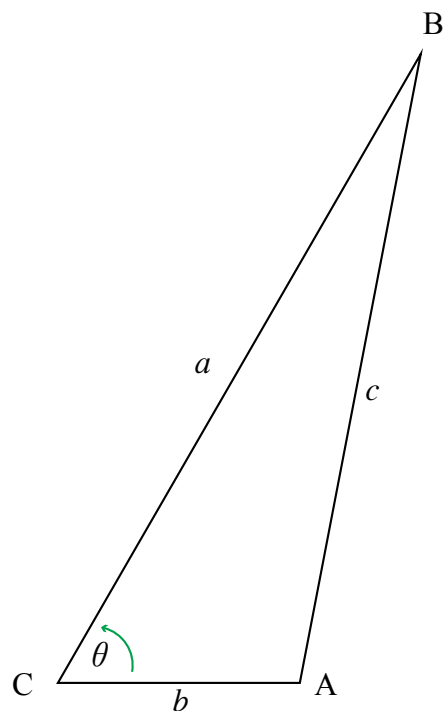
SHOW ALL RELEVANT WORK. BE SURE ALL ANSWERS ARE SIMPLIFIED AND THAT ALL
WORK IS LOGICAL. BOX YOUR ANSWER. NO CALCULATOR!!

[10] (1)

GIVEN: $\triangle ABC$

$$\begin{cases} AB = c = 2\sqrt{2} \\ AC = b = 3 \\ BC = a = 2 \\ m\angle ACB = \theta \end{cases}$$

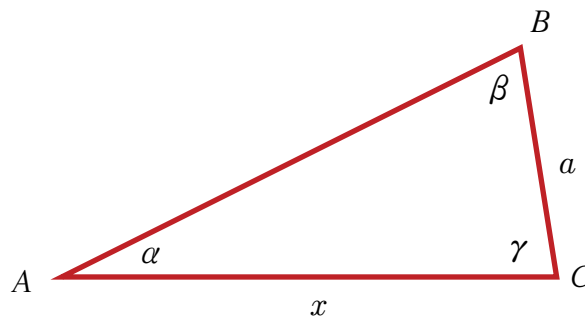
FIND: θ



[10] (2) GIVEN: $\triangle ABC$, $BC = a$, $AC = x$

$$m\angle BAC = \alpha, m\angle ABC = \beta$$

$$\begin{cases} a = 2\sqrt{5} \\ \alpha = \tan^{-1} \frac{3}{4} \\ \beta = \tan^{-1} 2 \end{cases}$$



FIND: x (express x as an algebraic number).

(your final answer must not have any trig – functions)

[15] (3) GIVEN: $2e^{3x} - 3e^{2x} - 2e^x = 0$

FIND:

a) The set, Λ , so that

$$2e^{3x} - 3e^{2x} - 2e^x = 0 \iff x \in \Lambda.$$

b) Count the number of elements in Λ , $n(\Lambda)$.

[15] (4) SOLVE: $e^{-2x} \geq 5$ (Express the solution set
using interval notation)