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First Exam MTH 211 Fall 2010

Ayman Badawi

QUESTION 1. (14 points) Draw a line segment of length 10cm. Now hide your marked ruler. Use unmarked ruler and a compass only to construct a line segment of length $\sqrt{21}$. State the CRUCIAL steps in the construction. NO MATH JUSTIFICATION IS NEEDED.

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QUESTION 2. (14 points) Draw a line segment of length 3cm. Now use the construction you made in question one to construct a line segment of length $\sqrt{30}$. State the CRUCIAL steps in the construction. NO MATH JUSTIFICATION IS NEEDED.

QUESTION 3. (10 points) STATE the five axioms of Euclidean .

QUESTION 4. (20 points) Draw a line segment of length 5cm. Now hide your marked ruler. Use unmarked ruler and a compass only to construct a regular 5-gon such that each side has length equals 4cm. State the CRUCIAL steps in the construction. NO MATH JUSTIFICATION IS NEEDED.

QUESTION 5. (12 points) Draw a lone segment of length 12 cm. Hide your marked ruler, and construct a line segment of length $4.8cm$ State the steps of the construction. NO MATH JUSTIFICATION IS NEEDED.

QUESTION 6. (12 points) a) Can we construct a regular 48-gon? If yes, what is the measurement of each interior angle?

b) Can we construct an angle of measurement 40 degrees? If yes, why? and if No, then explain.

c) Can we construct a regular 44-gon? If yes, why? and if No, then explain.

QUESTION 7. (18 points) Let ab be a diameter of a semicircle such that $\mid ab \mid= 10cm$. Now hide your marked ruler. Find two points say D, F lying on the arc of the semicircle and two points say X, Y lying on the diameter ab such that $DFXY$ is a rectangle with FX as the length, XY as the width, and $\mid FX \mid= 2.5 \mid XY \mid$. State the CRUCIAL steps in the construction and then verify your construction.

Faculty information

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