MTH 211, Math for Architects, Spring 2014

Ayman Badawi

QUESTION 1. (Haya Alsalama and Zainab Zayed)
Draw a reasonable line segment and call it AB.

1. (**3 points**) Divide AB into 3 equal parts. Let us call the length of each part x, so $|AB| = 3x$.

2. (**8 points**) Use (1) to Construct a line segment of length $\sqrt{\sqrt{13}x^2 - x^2}$. Only unmarked ruler and a compass are allowed in this construction. STATE the steps CLEARLY and try to be BRIEF to the point.

3. (**4 points**) Use (2) and (1) to construct a line segment of length $\sqrt{3x}\sqrt[4]{\sqrt{13}x^2 - x^2}$. Only unmarked ruler and a compass are allowed in this construction. STATE the steps CLEARLY and try to be BRIEF to the point.

QUESTION 2. (Habib Bitar) Draw a reasonable line segment and call it AB.

1. (**3 points**) Divide AB into 2 equal parts. Let us call the length of each part x, so $|AB| = 2x$.

2. (**8 points**) Use (1) to Construct a line segment of length $\sqrt{\sqrt{20}x^2 - x^2}$. Only unmarked ruler and a compass are allowed in this construction. STATE the steps CLEARLY and try to be BRIEF to the point.

3. (**4 points**) Use (2) and (1) to construct a line segment of length $\sqrt{3x}\sqrt[4]{\sqrt{20}x^2 - x^2}$. Only unmarked ruler and a compass are allowed in this construction. STATE the steps CLEARLY and try to be BRIEF to the point.

QUESTION 3. (Mohamamd Latifi and Fatima Al-Awadi) Draw a reasonable line segment and call it AB.

1. (**3 points**) Divide AB into 4 equal parts. Let us call the length of each part x, so $|AB| = 4x$.

2. (**8 points**) Use (1) to Construct a line segment of length $\sqrt{\sqrt{32}x^2 - x^2}$. Only unmarked ruler and a compass are allowed in this construction. STATE the steps CLEARLY and try to be BRIEF to the point.

3. (**4 points**) Use (2) and (1) to construct a line segment of length $\sqrt{5x}\sqrt[4]{\sqrt{32}x^2 - x^2}$. Only unmarked ruler and a compass are allowed in this construction. STATE the steps CLEARLY and try to be BRIEF to the point.

QUESTION 4. (Nasser Alzayani, Xeina AlMalki, Yasmeen Hamouda, and Abdulmalik Ghazzawi)
Draw a reasonable line segment and call it AB.

1. (**3 points**) Divide AB into 5 equal parts. Let us call the length of each part x, so $|AB| = 5x$.

2. (**8 points**) Use (1) to Construct a line segment of length $\sqrt{2\sqrt{41}x^2 - 4x^2}$. Only unmarked ruler and a compass are allowed in this construction. STATE the steps CLEARLY and try to be BRIEF to the point.

3. (**4 points**) Use (2) and (1) to construct a line segment of length $\sqrt{7x}\sqrt[4]{2\sqrt{41}x^2 - 4x^2}$. Only unmarked ruler and a compass are allowed in this construction. STATE the steps CLEARLY and try to be BRIEF to the point.

QUESTION 5. (Alia Hantash, , Basant ElShimy, and Fay El Mutwalli)
Draw a reasonable line segment and call it AB.

1. (**3 points**) Divide AB into 3 equal parts. Let us call the length of each part x, so $|AB| = 3x$.

2. (**8 points**) Use (1) to Construct a line segment of length $\sqrt{\sqrt{34}x^2 - x^2}$. Only unmarked ruler and a compass are allowed in this construction. STATE the steps CLEARLY and try to be BRIEF to the point.

3. (**4 points**) Use (2) and (1) to construct a line segment of length $\sqrt{6x}\sqrt[4]{\sqrt{34}x^2 - x^2}$. Only unmarked ruler and a compass are allowed in this construction. STATE the steps CLEARLY and try to be BRIEF to the point.

QUESTION 6. (Mariam Alzaabi, Nada Abushaqra, Hala Aljuboori, and Haia Machfij)
Draw a reasonable line segment and call it AB.

1. (**3 points**) Divide AB into 5 equal parts. Let us call the length of each part x, so $|AB| = 5x$.

2. (**8 points**) Use (1) to Construct a line segment of length $\sqrt{2\sqrt{109}x^2 - 4x^2}$. Only unmarked ruler and a compass are allowed in this construction. STATE the steps CLEARLY and try to be BRIEF to the point.

3. (**4 points**) Use (2) and (1) to construct a line segment of length $\sqrt{5x}\sqrt[4]{2\sqrt{109}x^2 - 4x^2}$. Only unmarked ruler and a compass are allowed in this construction. STATE the steps CLEARLY and try to be BRIEF to the point.

QUESTION 7. (Rami Abdulhamid and Mohamed saleh) Draw a reasonable line segment and call it AB.

   1. (**3 points**) Divide AB into 2 equal parts. Let us call the length of each part x, so $|AB| = 2x$.

   2. (**8 points**) Use (1) to Construct a line segment of length $\sqrt{\sqrt{13}x^2 - x^2}$. Only unmarked ruler and a compass are allowed in this construction. STATE the steps CLEARLY and try to be BRIEF to the point.

   3. (**4 points**) Use (2) and (1) to construct a line segment of length $\sqrt{5x}\sqrt[4]{\sqrt{13}x^2 - x^2}$. Only unmarked ruler and a compass are allowed in this construction. STATE the steps CLEARLY and try to be BRIEF to the point.

QUESTION 8. (Nada almulla, Salwa alkhudairi, and Manar kamal)

   Draw a reasonable line segment and call it AB.

   1. (**3 points**) Divide AB into 3 equal parts. Let us call the length of each part x, so $|AB| = 3x$.

   2. (**8 points**) Use (1) to Construct a line segment of length $\sqrt{\sqrt{37}x^2 - x^2}$. Only unmarked ruler and a compass are allowed in this construction. STATE the steps CLEARLY and try to be BRIEF to the point.

   3. (**4 points**) Use (2) and (1) to construct a line segment of length $\sqrt{7x}\sqrt[4]{\sqrt{37}x^2 - x^2}$. Only unmarked ruler and a compass are allowed in this construction. STATE the steps CLEARLY and try to be BRIEF to the point.

QUESTION 9. (Jonas)

   Draw a reasonable line segment and call it AB.

   1. (**3 points**) Divide AB into 4 equal parts. Let us call the length of each part x, so $|AB| = 4x$.

   2. (**8 points**) Use (1) to Construct a line segment of length $\sqrt{3\sqrt{73}x^2 - 9x^2}$. Only unmarked ruler and a compass are allowed in this construction. STATE the steps CLEARLY and try to be BRIEF to the point.

   3. (**4 points**) Use (2) and (1) to construct a line segment of length $\sqrt{5x}\sqrt[4]{3\sqrt{73}x^2 - 9x^2}$. Only unmarked ruler and a compass are allowed in this construction. STATE the steps CLEARLY and try to be BRIEF to the point.

Faculty information

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