

## MTH 211, Math for Architects, Spring 2014

Ayman Badawi

### QUESTION 1. (Haya Alsalama and Zainab Zayed)

1. No measurements are allowed. Only use a compass and unmarked ruler. Draw a circle, say  $C$ , centered at  $O$ . Choose a point on the circle and call it  $F$ . Draw a circle, say  $L$ , centered at  $F$  such that  $L$  does not pass through  $O$ . Construct the inversion of  $L$  with respect to  $C$ . State the steps in brief and work out the actual construction.

2. No measurements are allowed. Only use a compass and unmarked ruler. Draw a circle, say  $C$ , centered at  $O$ . Choose a point  $Q$  outside the circle. Construct the tangent line to  $C$ , say  $T$ , such that  $T$  passes through  $Q$ . Then construct (find)  $\text{Inv}(Q)$ . State the steps in brief and work out the actual construction.

### QUESTION 2. (Habib Bitar )

1. No measurements are allowed. Only use a compass and unmarked ruler. Draw a circle, say  $C$ , centered at  $O$ . Choose a point on the circle and call it  $F$ . Draw a circle, say  $L$ , centered at  $F$  such that  $L$  does not pass through  $O$ . Construct the inversion of  $L$  with respect to  $C$ . State the steps in brief and work out the actual construction.

2. No measurements are allowed. Only use a compass and unmarked ruler. Draw a circle, say  $C$ , centered at  $O$ . Choose a point  $Q$  outside the circle. Construct the tangent line to  $C$ , say  $T$ , such that  $T$  passes through  $Q$ . Then construct (find)  $\text{Inv}(Q)$ . State the steps in brief and work out the actual construction.

### QUESTION 3. ( Mohamamd Latifi and Fatima Al-Awadi)

1. No measurements are allowed. Only use a compass and unmarked ruler. Draw a circle, say  $C$ , centered at  $O$ . Choose a point on the circle and call it  $F$ . Draw a circle, say  $L$ , centered at  $F$  such that  $L$  does not pass through  $O$ . Construct the inversion of  $L$  with respect to  $C$ . State the steps in brief and work out the actual construction.

2. No measurements are allowed. Only use a compass and unmarked ruler. Draw a circle, say  $C$ , centered at  $O$ . Choose a point  $Q$  outside the circle. Construct the tangent line to  $C$ , say  $T$ , such that  $T$  passes through  $Q$ . Then construct (find)  $\text{Inv}(Q)$ . State the steps in brief and work out the actual construction.

### QUESTION 4. (Nasser Alzayani, Xeina AlMalki, Yasmeeen Hamouda, and Abdulmalik Ghazzawi )

1. No measurements are allowed. Only use a compass and unmarked ruler. Draw a circle, say  $C$ , centered at  $O$ . Choose a point on the circle and call it  $F$ . Draw a circle, say  $L$ , centered at  $F$  such that  $L$  does not pass through  $O$ . Construct the inversion of  $L$  with respect to  $C$ . State the steps in brief and work out the actual construction.

2. No measurements are allowed. Only use a compass and unmarked ruler. Draw a circle, say  $C$ , centered at  $O$ . Choose a point  $Q$  outside the circle. Construct the tangent line to  $C$ , say  $T$ , such that  $T$  passes through  $Q$ . Then construct (find)  $\text{Inv}(Q)$ . State the steps in brief and work out the actual construction.

### QUESTION 5. ( Alia Hantash, , Basant ElShimy, and Fay El Mutwalli )

1. No measurements are allowed. Only use a compass and unmarked ruler. Draw a circle, say  $C$ , centered at  $O$ . Choose a point on the circle and call it  $F$ . Draw a circle, say  $L$ , centered at  $F$  such that  $L$  does not pass through  $O$ . Construct the inversion of  $L$  with respect to  $C$ . State the steps in brief and work out the actual construction.

2. No measurements are allowed. Only use a compass and unmarked ruler. Draw a circle, say  $C$ , centered at  $O$ . Choose a point  $Q$  outside the circle. Construct the tangent line to  $C$ , say  $T$ , such that  $T$  passes through  $Q$ . Then construct (find)  $\text{Inv}(Q)$ . State the steps in brief and work out the actual construction.

### QUESTION 6. ( Mariam Alzaabi, Nada Abushaqra, Hala Aljuboori, and Haia Machfij )

1. No measurements are allowed. Only use a compass and unmarked ruler. Draw a circle, say  $C$ , centered at  $O$ . Choose a point on the circle and call it  $F$ . Draw a circle, say  $L$ , centered at  $F$  such that  $L$  does not pass through  $O$ . Construct the inversion of  $L$  with respect to  $C$ . State the steps in brief and work out the actual construction.

2. No measurements are allowed. Only use a compass and unmarked ruler. Draw a circle, say  $C$ , centered at  $O$ . Choose a point  $Q$  outside the circle. Construct the tangent line to  $C$ , say  $T$ , such that  $T$  passes through  $Q$ . Then construct (find)  $\text{Inv}(Q)$ . State the steps in brief and work out the actual construction.

**QUESTION 7. ( Rami Abdulhamid and Mohamed saleh )**

1. No measurements are allowed. Only use a compass and unmarked ruler. Draw a circle, say  $C$ , centered at  $O$ . Choose a point on the circle and call it  $F$ . Draw a circle, say  $L$ , centered at  $F$  such that  $L$  does not pass through  $O$ . Construct the inversion of  $L$  with respect to  $C$ . State the steps in brief and work out the actual construction.

2. No measurements are allowed. Only use a compass and unmarked ruler. Draw a circle, say  $C$ , centered at  $O$ . Choose a point  $Q$  outside the circle. Construct the tangent line to  $C$ , say  $T$ , such that  $T$  passes through  $Q$ . Then construct (find)  $\text{Inv}(Q)$ . State the steps in brief and work out the actual construction.

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

1. No measurements are allowed. Only use a compass and unmarked ruler. Draw a circle, say  $C$ , centered at  $O$ . Choose a point on the circle and call it  $F$ . Draw a circle, say  $L$ , centered at  $F$  such that  $L$  does not pass through  $O$ . Construct the inversion of  $L$  with respect to  $C$ . State the steps in brief and work out the actual construction.

2. No measurements are allowed. Only use a compass and unmarked ruler. Draw a circle, say  $C$ , centered at  $O$ . Choose a point  $Q$  outside the circle. Construct the tangent line to  $C$ , say  $T$ , such that  $T$  passes through  $Q$ . Then construct (find)  $\text{Inv}(Q)$ . State the steps in brief and work out the actual construction.

**QUESTION 9. (Jonas)**

1. No measurements are allowed. Only use a compass and unmarked ruler. Draw a circle, say  $C$ , centered at  $O$ . Choose a point on the circle and call it  $F$ . Draw a circle, say  $L$ , centered at  $F$  such that  $L$  does not pass through  $O$ . Construct the inversion of  $L$  with respect to  $C$ . State the steps in brief and work out the actual construction.

2. No measurements are allowed. Only use a compass and unmarked ruler. Draw a circle, say  $C$ , centered at  $O$ . Choose a point  $Q$  outside the circle. Construct the tangent line to  $C$ , say  $T$ , such that  $T$  passes through  $Q$ . Then construct (find)  $\text{Inv}(Q)$ . State the steps in brief and work out the actual construction.

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