Name: _____

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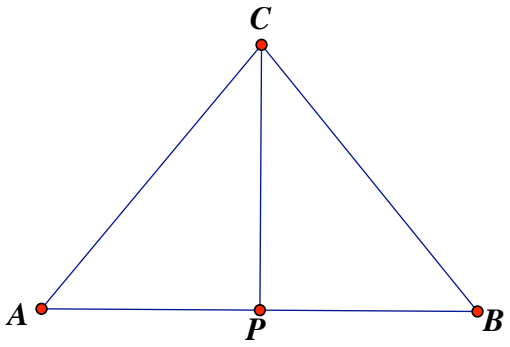
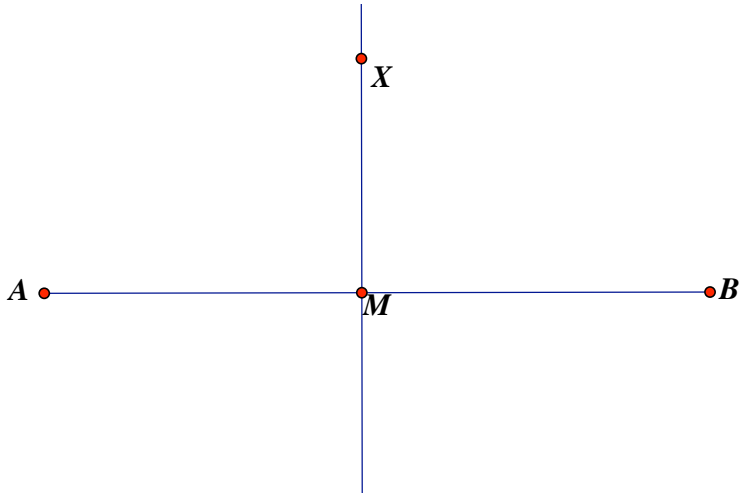
Math 6140, Fall 2012, Test 1
4 October 2012

Each problem is worth 11 points and you get 1 point for putting your name on your paper.

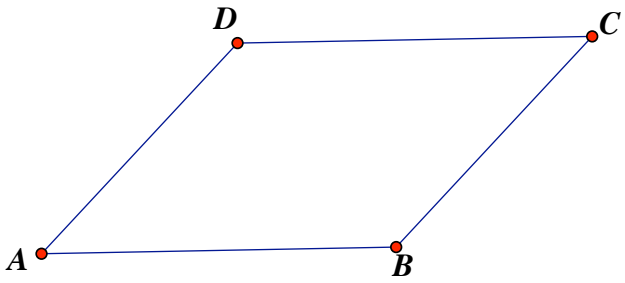
1. Given: $AC = BC$ and $CP \perp AB$.
   Prove: P is the midpoint of AB.



2. Given: MX is the perpendicular bisector of AB.
   Prove: $XA = XB$.

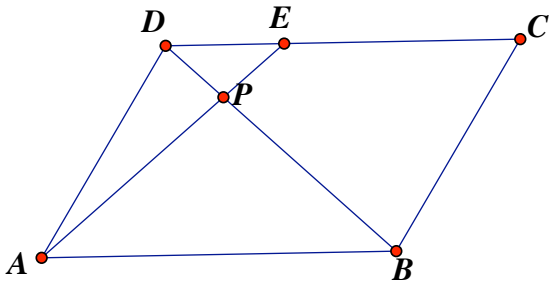


3. Given: $ABCD$ is a quadrilateral, $AB = CD$ and $BC = AD$.
   Prove: $ABCD$ is a parallelogram.

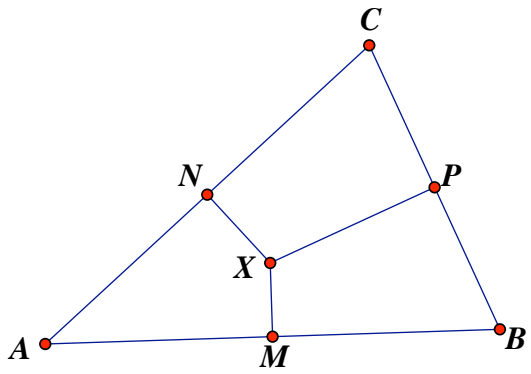


4. Given: $ABCD$ is a parallelogram, E is a point on DC such that $DC = 3DE$, and P is the intersection of AE with DB.

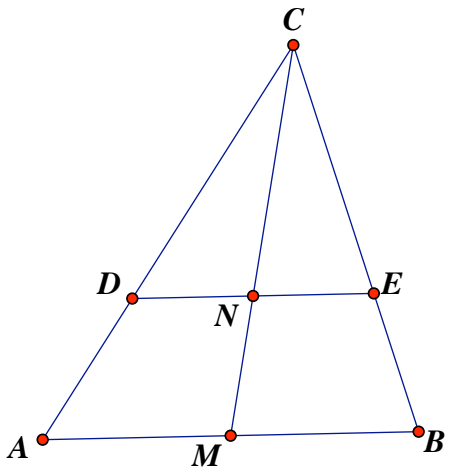
   Determine the ratio $\dfrac{DB}{DP}$.



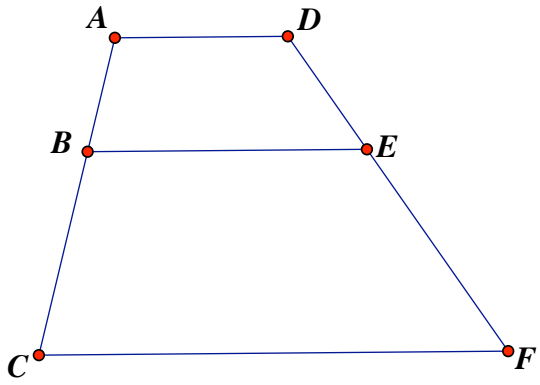
5. (From the proof of Theorem 24 in case (i).)
Given: M, N and P are midpoints, $MX \perp AB$ and $NX \perp AC$.
Prove: PX is the perpendicular bisector of BC.



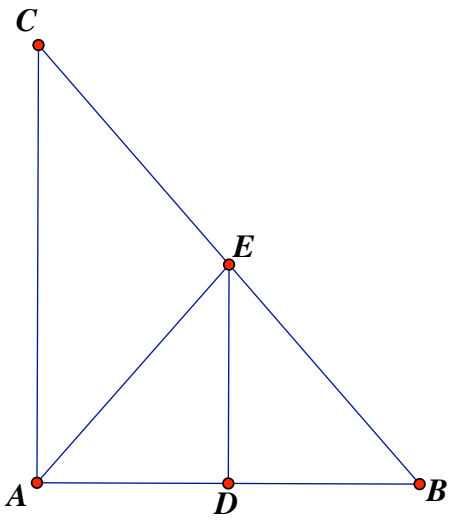
6. (This was a homework problem.)
   Given: DE is parallel to AB and M is the midpoint of AB.
   Prove: N is the midpoint of DE.



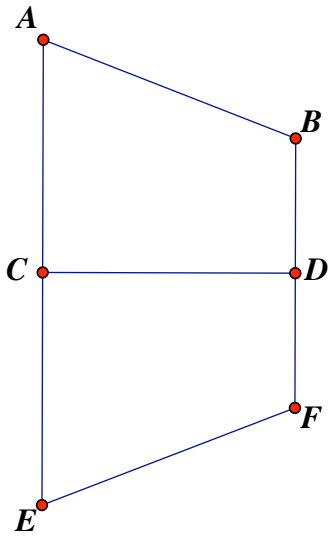
7. Given: AD is parallel to BE and BE is parallel to CF.
   Prove: $\dfrac{AB}{AC} = \dfrac{DE}{DF}$.



8. Given: $\angle CAB$ is a right angle, D is the midpoint of AB, and E is the midpoint of BC.
   Prove: $\Delta ADE \cong \Delta BDE$.



9. Given: $AE \perp CD$, $BF \perp CD$, $AC = CE$ and $BD = DF$.
   Prove: $AB = EF$.



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