

Geometry Test 1 Spring 2020

Work in your notebook. Show all work for credit!

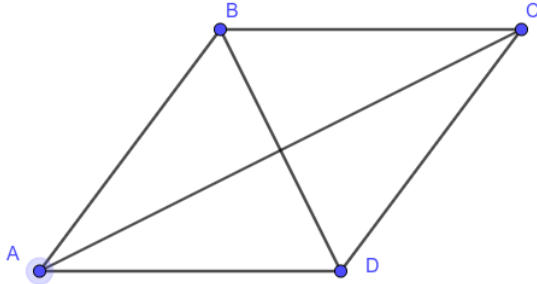
1. You have a 60% solution of acid, and 5% solution of acid. How much of each should you mix together to make 10 liters of 20% solution?
2. For each statement, tell me if it is true or false. If it is false, give a counterexample.
 - (a) If you have 2 quarters then you have 50 cents.
 - (b) If you have 50 cents then you have 2 quarters.
 - (c) If a polygon is a square, then it has four equal sides.
3. Perform the following steps:
 - (a) Draw a line \mathcal{L} and a point p not on that line in your notebook.
 - (b) Draw the line perpendicular to \mathcal{L} through the point p using the construction you have learned.

4. Solve the following equation for y :

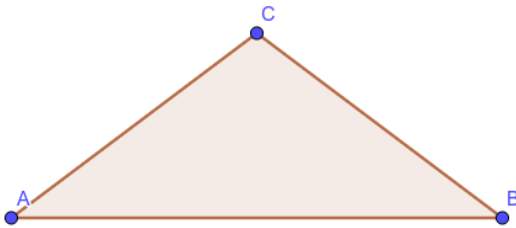
$$2y + 8x + 4 = 8$$

5. Give an example of a convex polygon.
6. Give an example of a polygon that is **not** convex.

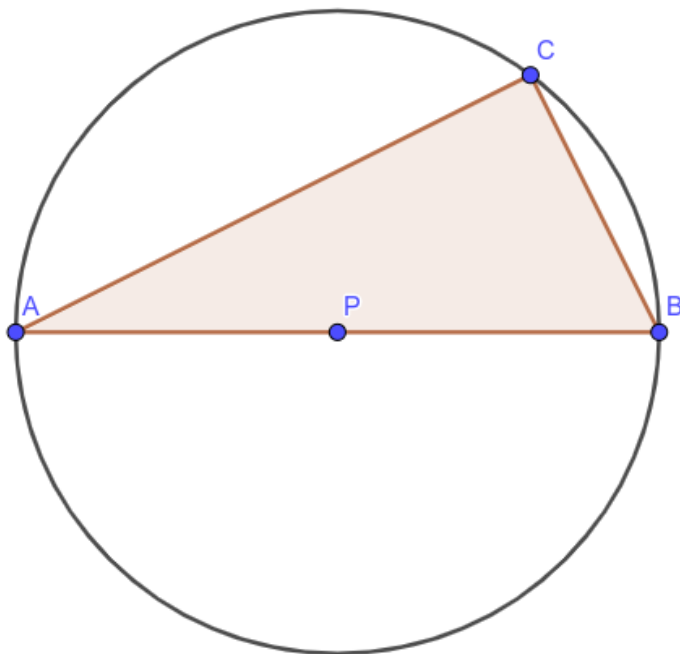
7. In the picture below $ABCD$ is a rhombus, a polygon with all sides equal. Prove that the diagonals \overline{AC} and \overline{BD} are perpendicular bisectors of each other.



8. In the diagram below $\triangle ABC$ is an isosceles triangle with $|AC| = |BC|$. If $m\angle A = 40^\circ$, what are the measures of the other angles?



9. In the diagram below \overline{AB} is a diameter through the center P of the circle:



- (a) What is the measure of the angle $\angle C$?
- (b) If the arc \widehat{BC} has measure 48° , what are the other angles of the triangle $\triangle ABC$?
10. How many sides does a polygon have if the sum of its angles is 1440° .
11. Inscribe a regular hexagon inside a circle using only a straight edge and a compass.
12. (Extra Credit): If each angle of a regular polygon is 174° how many sides does it have?
13. (Extra Credit): What is the definition of a **convex polygon**?