

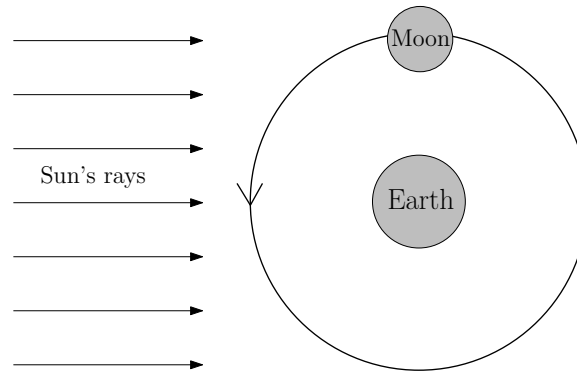
MATH 191 – PRACTICE MIDTERM 1

Name: _____

FOR FULL CREDIT, SHOW ALL WORK NO CALCULATORS
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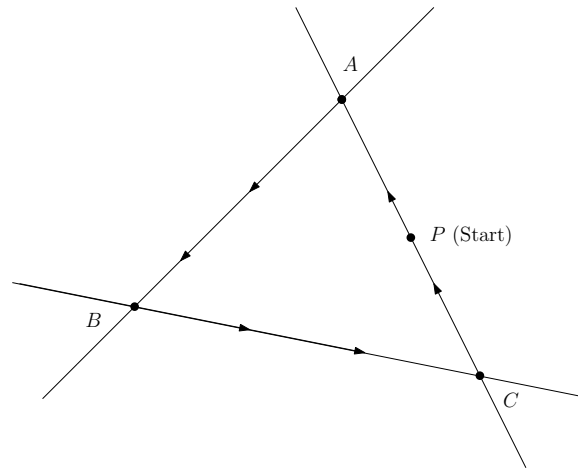
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1. Look at the figure below and use it to answer the following questions. Be sure to clearly explain all your answers, using diagrams when appropriate.



- (a) What does the moon look like to people on Earth who can see it?
- (b) Is the moon waxing or waning?
- (c) Assuming that in the figure, we are looking down on the North Pole, if you see the moon high in the sky, what time is it?

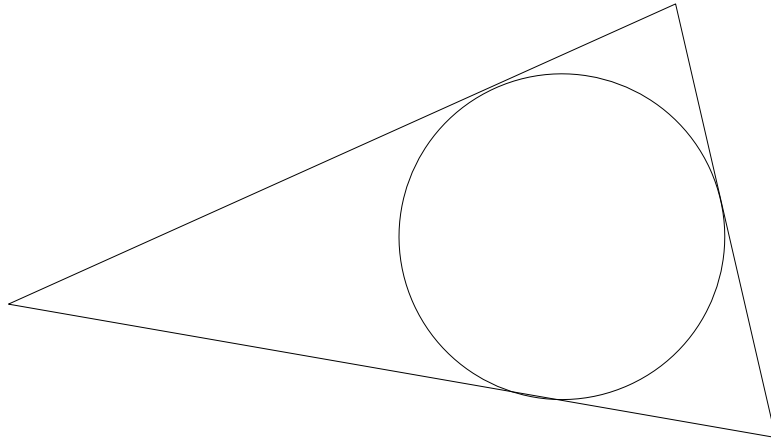
2. Use the figure below to answer the following questions.



- (a) If you start standing at point P facing point A and walk along the path indicated to return to P, which angles do you turn? Indicate the angles on the diagram.
- (b) When you return to point P, how many degrees have you turned? (You can answer this question without measuring the angles.)

- (c) Use your answers to explain why the sum of the angles in a triangle is 180° .

3. Johnny looks at the diagram below and says that because the circle is inside the triangle, the circle must have fewer degrees than the triangle. Lindsay counters that a triangle has 180° and a circle has 360° , so Johnny is wrong. Explain why Johnny is wrong. What could Johnny compare instead of angle measures and say that the circle is smaller than the triangle?



4. An air traffic control tower detects a plane 100 miles away. A second air traffic control tower 150 miles from the first detects the same plane 80 miles away. Describe all possible locations of the plane, and explain your answer.

5. Explain how you would construct a triangle with side lengths 3 inches, 4 inches and 5 inches using a ruler and compass. Be sure to explain why your construction works. If you know that the triangle is a right triangle, how might you construct the triangle using a piece of paper, a ruler, and scissors?

6. a. Using the definition that a that a trapezoid has *at least* one pair of parallel sides, explain in words the relationship between parallelograms and trapezoids.
- b. What is the relationship between squares and rhombuses? Explain.