# Geometry Homework #11

1) Using graph paper, construct a golden rectangle from the first 7 terms of the Fibonacci's sequence. (Tape sheets together if necessary.)

2) Find a formula to calculate any term for the geometric sequence -6, -24, -96, -324, -1536…

3) Use the 16th and 17th terms of the Fibonacci sequence to approximate the golden ratio to three decimal places.

4) Find the sum of the geometric series $11 + 66 + 396 +…+ 3,079,296$ without actually adding up all of the numbers.

5) Suppose that the total enrollment at The Phillips Academy during its first year in operation was 24 students and the enrollment increased to 36 students during the second year and 54 students the third year. If this growth rate continues, find a formula to calculate the number of students enrolled during any given year and then use this formula to determine how many students will be enrolled at The Phillips Academy during their 10th year in operation, rounded to the nearest whole number.

6) In the following circle, C, determine, exactly, the length of chord AB, the angular measure of minor arc AB, the length of minor arc AB, and the area of sector ACB if the length of AC is 8 and angle ACB is 90 degrees.
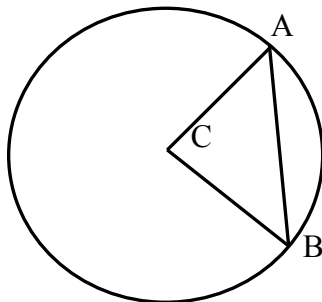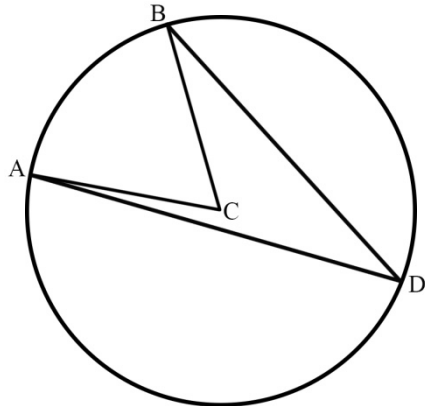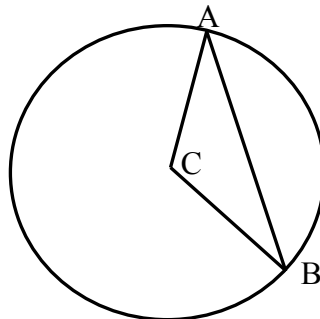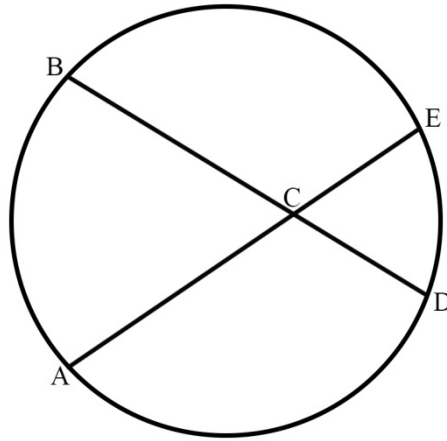
7) In the following circle, determine the size of angle ACB if the angular measure of minor arc AB = $87°$ and the angular measure of minor arc DE = $25°$.
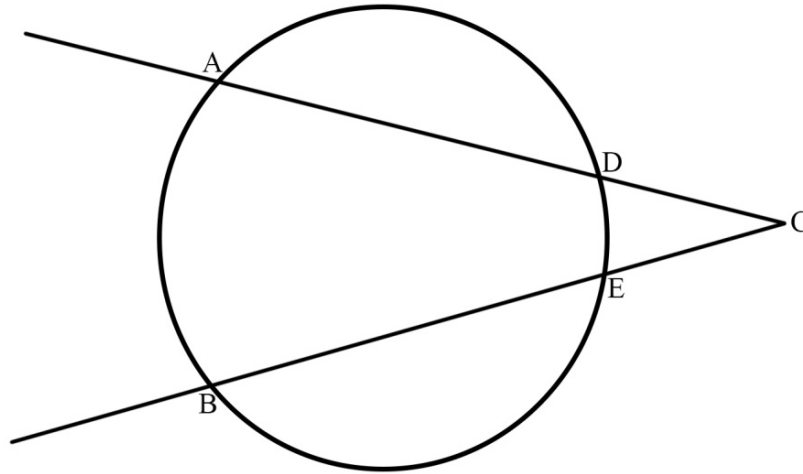


8) If, in circle C, angle ACB = $68°$, how large is angle ADB?



9) In the following circle, C, determine, exactly, the length of chord AB, the angular measure of major arc AB, the length of major arc AB, and the area of sector ACB if the length of AC is 12 and angle ACB is 120 degrees.
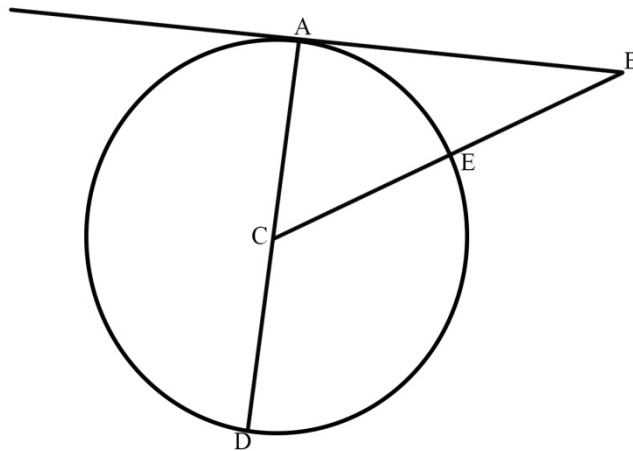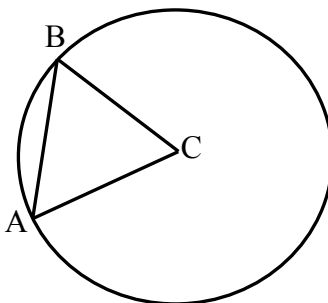
10) If the angular measure of minor arc AB = $81°$ and the angular measure of minor arc DE = $57°$, find the size of angle ACB.

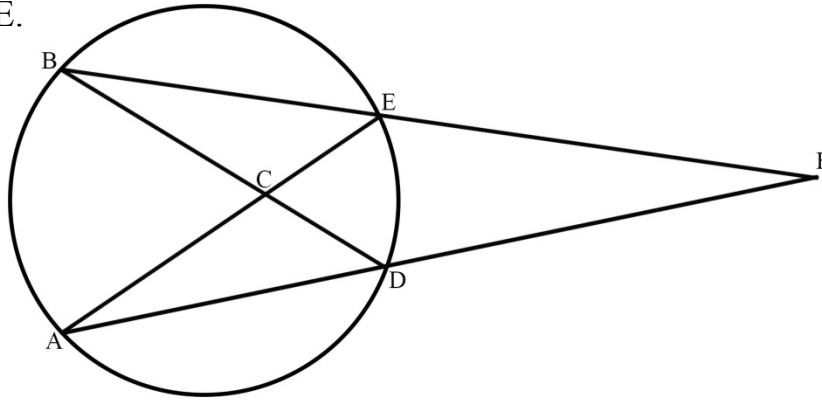11) Line AB is tangent to circle C at point A, and AD is a diameter of the circle. If AB = 15 and AD = 16, how long is EB?

12) In the following circle, C, determine, exactly, the length of chord AB, the angular measure of minor arc AB, the length of minor arc AB, and the area of sector ACB if the length of BC is 18 and angle ACB is 60 degrees.
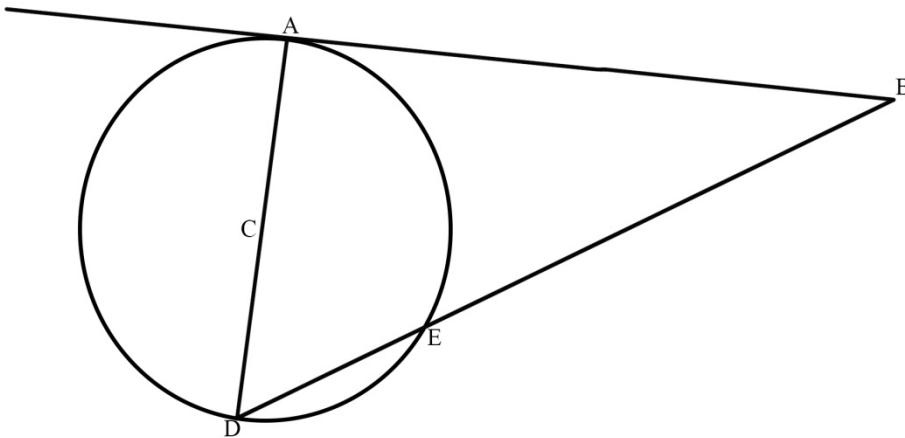
13) If angle ACB = $43°$ and the angular measure of minor arc DE = $32°$, find the size of angle DFE.

14) Line AB is tangent to circle C at point A and AD is a diameter of circle C. If the angular measure of minor arc AE is $120°$ and AC = 7, what is the exact length of AB?
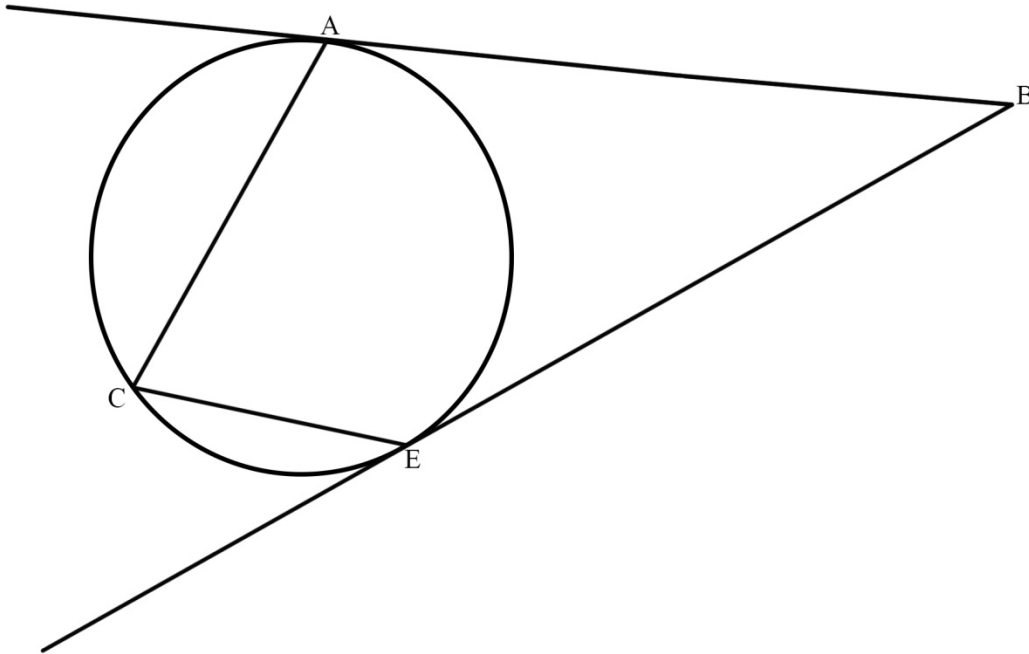
15) In the following circle, C, determine, exactly, the length of chord AB, the angular measure of major arc AB, the length of major arc AB, and the area of sector ACB if the length of AC is 48 and angle ACB is 120 degrees.
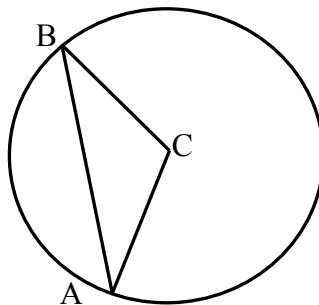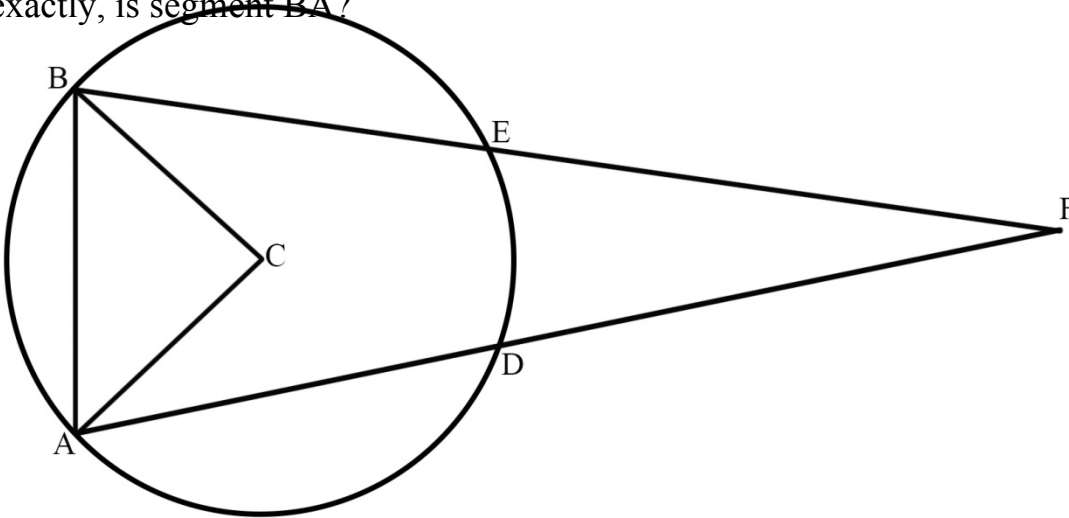
16) Line AB is tangent to the circle at point A and BE is tangent to the circle at point E. If angle ACE is $79^o$ how large is angle ABE?



17) Lines BE and AD are both secants of circle C and intersect at point F. If the angular measure of minor arc ED is $54^o$, BC = 9, and angle AFB is $18^o$, how long, exactly, is segment BA?

18) In the following circle, C, determine, exactly, the length of chord AB, the angular measure of minor arc AB, the length of minor arc AB, and the area of sector ACB if the length of AC is 10 and angle ACB is 90 degrees.
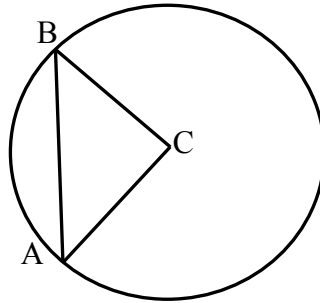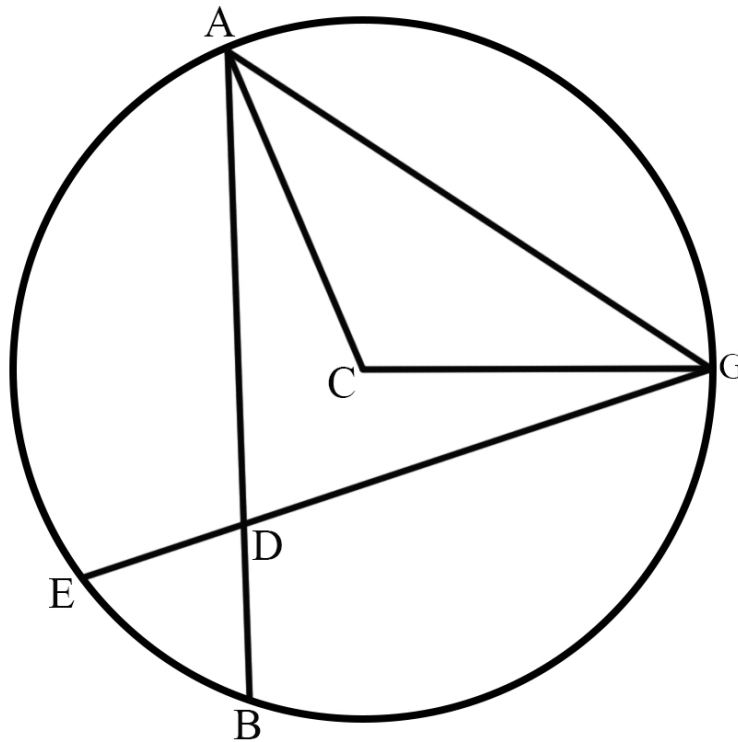


19) AB is a diameter of circle C, and line AB is perpendicular to line EG. If chord EG = 24, chord BG = 15, AB = 25, and the angular measure of minor arc AG is $116^o$, find the length of chord AG, the length of segment DB, the length of segment ED, the length of segment CD, the size of angle BAG, and the angular measures of minor arcs BG and EA.
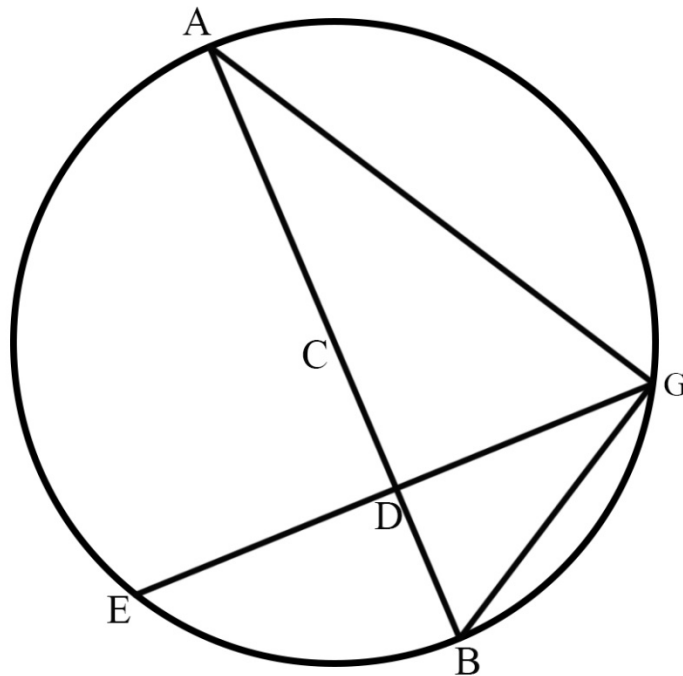
20) AB and EG are both chords of circle C and intersect at point D. If the angular measure of minor arc EB is $24°$, AC = 8, and angle ADG is $72°$, what is the angular measure of minor arc AG, the length, exactly, of arc AG, and the length, exactly, of chord AG?