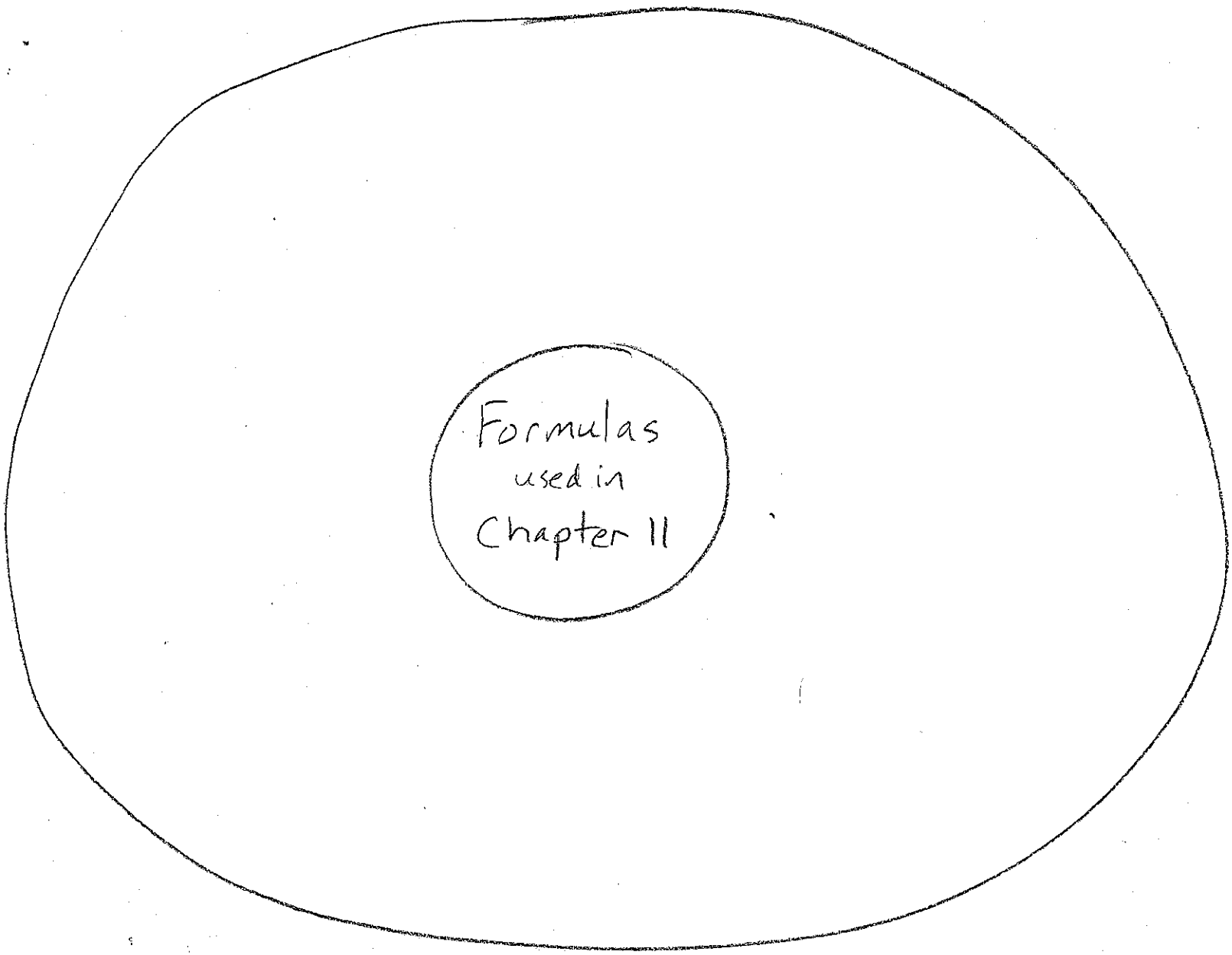
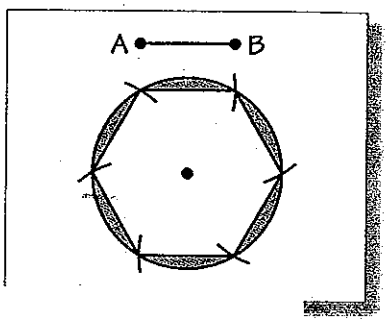

Formulas
used in
Chapter 11

40. CONSTRUCTION Use a ruler and compass.

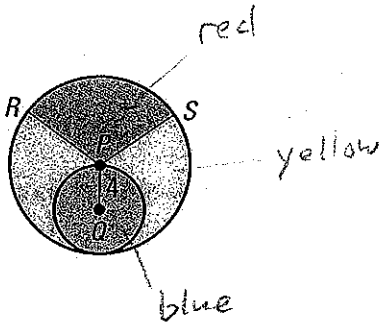
a. Draw $\overline{AB}$ with a length of 1 inch. Open the compass to 1 inch and draw a circle with that radius. Using the same compass setting, mark off equal parts along the circle. Then connect the six points where the compass marks and circle intersect to draw a regular hexagon as shown.

b. What is the area of the hexagon? of the shaded region?



c. Find the probability of a person standing inside the circle but outside the hexagon.

32. TANGENT CIRCLES In the diagram at the right, $\odot Q$ and $\odot P$ are tangent, and P lies on $\odot Q$. The measure of $\overset{\frown}{RS}$ is 108°. Find the area of the red region, the area of the blue region, and the area of the yellow region. Leave your answers in terms of π.



b) Find the length of $\overset{\frown}{RS}$.

c) Find the probability of a dart hitting the yellow region given that it hits somewhere in $\odot P$.

d) Find the probability of a dart hitting $\overset{\frown}{RS}$ given that it hits somewhere on the perimeter of sector RPS.