Exercises

1. Let T be any point on the bisector of $\angle AMB$. Show that if $\odot T$ is drawn tangent to $\overleftrightarrow{MA}$ it will also be tangent to $\overleftrightarrow{MB}$.
2. The radius of the Heading Alignment Cylinder was 20,000 ft. and a typical measure for $\angle AMB$ was 120. How long was the curved portion of the ground track, $\overset{\frown}{AB}$? (Use 3.1416 for π.)
3. The shuttle's turning radius changes as it moves along the surface of the Heading Alignment Cone. Is the radius larger near P or near Q?
4. A good approximation of the detailed landing procedure uses a Heading Alignment Cone with vertex below the surface of the Earth. A typical radius of the cone at a height of 30,000 ft above the Earth's surface is 20,000 ft. At a height of 12,000 ft, which is a typical height for Q, the radius of the cone is 14,000 ft.
   a. How far below the surface of the Earth is the vertex of the cone?
   b. What is the radius of the cone at a height of 15,000 ft?
   c. At what height is the radius of the cone equal to 12,000 ft?

Chapter Summary

1. If two figures are congruent, then they have the same area.
2. The area of a region is the sum of the areas of its non-overlapping parts.
3. The list below gives the formulas for areas of polygons.

Square:	$A = s^2$	Rectangle:	$A = bh$
Parallelogram:	$A = bh$	Triangle:	$A = \frac{1}{2}bh$
Rhombus:	$A = \frac{1}{2}d_1d_2$	Trapezoid:	$A = \frac{1}{2}h(b_1 + b_2)$

Regular polygon: $A = \frac{1}{2}ap$, where a is the apothem and p is the perimeter

4. The list below gives the formulas related to circles.

$$\begin{array}{ll} C = 2\pi r & \text{Length of arc} = \frac{x}{360} \cdot 2\pi r \\ C = \pi d & \\ A = \pi r^2 & \text{Area of sector} = \frac{x}{360} \cdot \pi r^2 \end{array} \left.\vphantom{\begin{array}{l} a \\ b \\ c \end{array}}\right\} \text{where } x \text{ is the measure of the arc}$$

5. If two triangles have equal heights, then the ratio of their areas equals the ratio of their bases. If two triangles have equal bases, then the ratio of their areas equals the ratio of their heights.
6. If the scale factor of two similar figures is $a:b$, then
   (1) the ratio of the perimeters is $a:b$.
   (2) the ratio of the areas is $a^2:b^2$.
7. Two principles used in geometric probability problems are stated and illustrated on page 461.