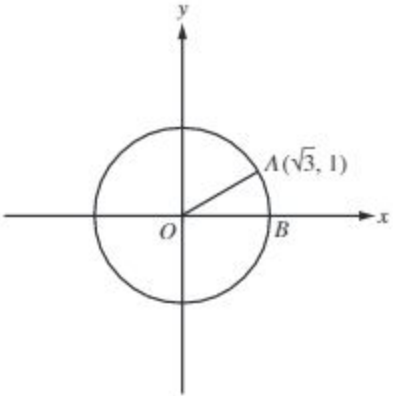
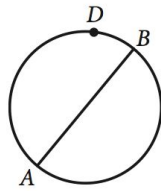


Geometry- Level 3

1	 <p>In the xy-plane above, O is the center of the circle, and the measure of $\angle AOB$ is $\frac{\pi}{a}$ radians. What is the value of a?</p>	Circles No Calculator
2	<p>Which of the following is an equation of a circle in the xy-plane with center $(0, 4)$ and a radius with endpoint $\left(\frac{4}{3}, 5\right)$?</p> <p>A) $x^2 + (y - 4)^2 = \frac{25}{9}$</p> <p>B) $x^2 + (y + 4)^2 = \frac{25}{9}$</p> <p>C) $x^2 + (y - 4)^2 = \frac{5}{3}$</p> <p>D) $x^2 + (y + 4)^2 = \frac{3}{5}$</p>	Circles With Calculator

3

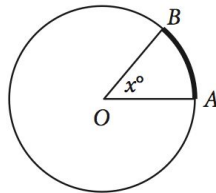


In the circle above, segment AB is a diameter. If the length of arc \widehat{ADB} is 8π , what is the length of the radius of the circle?

- A) 2
- B) 4
- C) 8
- D) 16

Circles
With Calculator

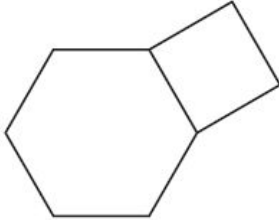
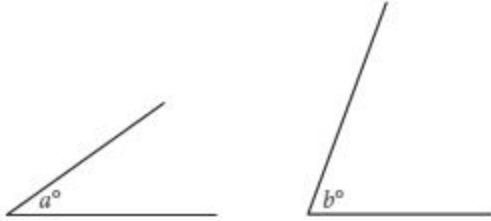
4



Note: Figure not drawn to scale.

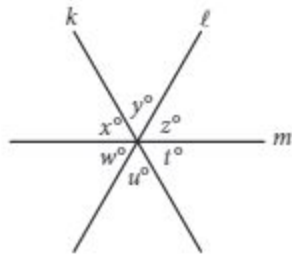
In the figure above, the circle has center O and has radius 10. If the length of arc \widehat{AB} (shown in bold) is between 5 and 6, what is one possible integer value of x ?

Circles
With Calculator

<p>5</p>	 <p>The figure above shows a regular hexagon with sides of length a and a square with sides of length a. If the area of the hexagon is $384\sqrt{3}$ square inches, what is the area, in square inches, of the square?</p> <p>A) 256 B) 192 C) $64\sqrt{3}$ D) $16\sqrt{3}$</p>	<p>Polygons With Calculator</p>
<p>6</p>	<p>A rectangle was altered by increasing its length by 10 percent and decreasing its width by p percent. If these alterations decreased the area of the rectangle by 12 percent, what is the value of p ?</p> <p>A) 12 B) 15 C) 20 D) 22</p>	<p>Polygons With Calculator</p>
<p>7</p>	 <p>Note: Figures not drawn to scale.</p> <p>The angles shown above are acute and $\sin(a^\circ) = \cos(b^\circ)$. If $a = 4k - 22$ and $b = 6k - 13$, what is the value of k ?</p> <p>A) 4.5 B) 5.5 C) 12.5 D) 21.5</p>	<p>Triangles With Calculator</p>

8	In a right triangle, one angle measures x° , where $\sin x^\circ = \frac{4}{5}$. What is $\cos(90^\circ - x^\circ)$?	Triangles No Calculator
9	In triangle ABC , the measure of $\angle B$ is 90° , $BC = 16$, and $AC = 20$. Triangle DEF is similar to triangle ABC , where vertices D , E , and F correspond to vertices A , B , and C , respectively, and each side of triangle DEF is $\frac{1}{3}$ the length of the corresponding side of triangle ABC . What is the value of $\sin F$?	Triangles No Calculator
10	In the xy -plane, the line determined by the points $(2, k)$ and $(k, 32)$ passes through the origin. Which of the following could be the value of k ? A) 0 B) 4 C) 8 D) 16	Slope With Calculator

11



Note: Figure not drawn to scale.

In the figure above, lines k , l , and m intersect at a point. If $x + y = u + w$, which of the following must be true?

- I. $x = z$
 - II. $y = w$
 - III. $z = t$
- A) I and II only
B) I and III only
C) II and III only
D) I, II, and III

Angles
No Calculator