

## GRE Geometry Practice Test 3

1)

A rectangle is inscribed inside of a circle such that every corner touches the edge of the circle. If the area of the rectangle is  $360\text{in}^2$  and the perimeter of the rectangle is  $98\text{in}$ , what is the area of the circle in inches squared?

Possible Answers:

$1681\pi$

The answer cannot be determined.

$600.25\pi$

$2401\pi$

$420.25\pi$

2)

John owns 8 black shirts, 7 red shirts, 6 blue shirts and 4 white shirts. If he wants to make a circle chart of his shirts, what is the degree angle corresponding to the "blue shirt section?"

Possible Answers:

90 degrees

43.2 degrees

The answer cannot be determined from the above information.

25.0 degrees

86.4 degrees

3)

A circular pie is cut into 30 pieces. Two people wish to split a piece of the pie, but one person wants to have twice as much as the other person. What is the angle of the smaller piece produced in this manner?

Possible Answers:

$12^\circ$

$8^\circ$

$15^\circ$

$4^\circ$

$16^\circ$

4)

Quantity A: The angle of a circle's sector having an arc length of  $10\pi$  and a radius of 7.

Quantity B: The angle of a circle's sector having an area of  $24\pi$  and a radius of 9.

Which of the following relations is true?

Possible Answers:

The relationship between the two values cannot be determined.

Quantity B is larger than quantity A.

The two quantities are equal.

Quantity A is larger than quantity B.

5)

What is the perimeter of a pie piece if the pie is sliced into 40 degree pieces and its area is  $361\pi$ ?

Possible Answers:

$38\pi/9$

$38 + 38\pi/9$

2.1

$38\pi$

$40.1\pi$

6)

What is the length of the arc of a circle with radius 10 that traces a 50 degree angle?

Possible Answers:

$25\pi/9$

$25\pi/29$

$25\pi/7$

$25\pi$

$20\pi/9$

7)

An ant walks around the edge of circular pizzas left on the counter of a pizza shop. On most days, it is shaken off the pizza before it manages to walk the complete distance.

Quantity A: The distance covered by the ant when walking over four slices of a pizza with a diameter of 12 and 10 equally-sized pieces.

Quantity B: The distance covered by the ant when walking over a complete personal pizza with a diameter of 6 inches.

What can we say about the two quantities?

Possible Answers:

Quantity A is larger.

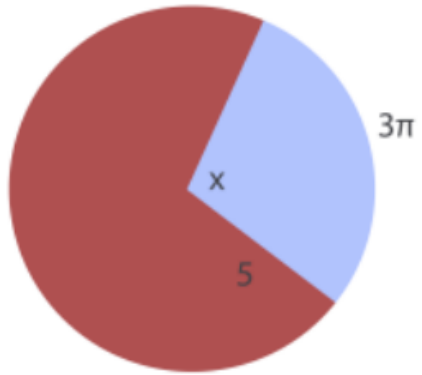
The relationship between the two quantities cannot be determined.

Quantity B is larger.

The two quantities are equal.

8)

A circle of radius 5, for an angle  $x$ , has an arc length of  $3\pi$ . What is the angle  $x$ ?



Possible Answers:

$144^\circ$

$108^\circ$

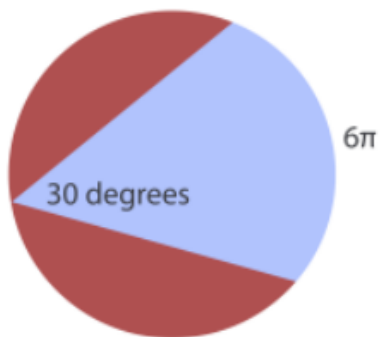
$54^\circ$

$43.2^\circ$

$216^\circ$

9)

Find the radius of the given circle:



Possible Answers:

36

The answer cannot be determined from the information given.

9

18

$36\pi$

10)

A given pizza with a 10-inch diameter has 1450 calories. A baker cuts the pizza using a  $25^\circ$  angle for each piece. If Susan eats five such pieces, how many calories does she consume? Round to the nearest calorie.

Possible Answers:

487

503

125

375

75

11)

An ant begins at the center of a pie with a 12" radius. Walking out to the edge of pie, it then proceeds along the outer edge for a certain distance. At a certain point, it turns back toward the center of the pie and returns to the center point. Its whole trek was 55.3 inches. What is the approximate size of the angle through which it traveled?

Possible Answers:

81.53°

128.21°

149.52°

91.44°

74.76°

12)

A study was conducted to determine the effectiveness of a vaccine for the common cold (Rhinovirus sp.). 1000 patients were studied. Of those, 500 received the vaccine and 500 did not. The patients were then exposed to the Rhinovirus and the results were tabulated.

Patient Age Group	Vaccinated	Unvaccinated
Under 18	18	63
18-30	4	32
31-50	5	29
51-70	4	51
Over 70	19	75

TABLE 1: Number of patients who caught the Rhinovirus

Table 1 shows the number of vaccinated and unvaccinated patients in each age group who caught the cold.

Suppose the scientists wish to create a pie chart reflecting a patient's odds of catching the virus depending on vaccination status and age group.

All 1000 patients are included in this pie chart.

What would be the angle of the arc for the portion of the chart representing vaccinated patients of all age groups who caught the virus?

Possible Answers:

60°

10°

Insufficient information to answer this question

18°

36°

13)

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Possible Answers:

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10°

Insufficient information to answer this question

18°

36°

14)

A group of students ate an 11-inch pizza that was cut into 14 equal slices. What was the angle measure needed to cut this pizza into these equal slices?

Possible Answers:

32.2°

$\frac{180}{7}^\circ$

$\frac{37}{2}^\circ$

25°

$\frac{1980}{7}^\circ$

**15)**

If the outer arc of  $\frac{1}{12}$ th of a circular pie is  $7\pi$ , what is the area of  $\frac{1}{4}$ th of the pie?

Possible Answers:

$10.5\pi$

None of the other answers

$1764\pi$

$441\pi$

$21\pi$

**16)**

What is the area of a sector of a circle of radius 4 that spans an arc of 86 degrees?

Possible Answers:

$\frac{1}{5} * \pi$

$\frac{172}{45} * \pi$

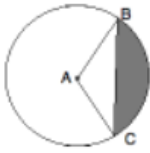
$\frac{12}{53} * \pi$

$\frac{1}{4} * \pi$

$\frac{17}{42} * \pi$



17)



The circle above has a center of A, and points B and C lie on the circumference.

$$\angle BAC = 120^\circ$$

$$\overline{AC} = 12$$

What is the area of the shaded region?

Possible Answers:

None of the other answers

$$12\sqrt{3}$$

$$48\pi - 36\sqrt{3}$$

$$144\pi$$

$$72$$

**18)**

**What is the angle between the hour and minute hand of a clock at 4:15?**

Possible Answers:

$37.5^\circ$

$15^\circ$

$23.5^\circ$

$30^\circ$

$10^\circ$

**19)**

**What is the angle, in degrees, between the minute and hour hands of the clock at 5 : 40 pm?**

Possible Answers:

$90^\circ$

$45^\circ$

$30^\circ$

$70^\circ$

20)

A clock has two equally long hands on it, each measuring 5 inches. If the minute hand is directly on 12 and the hour hand is directly on 4, what is the distance between the two hands?

Possible Answers:

$$\frac{10\pi}{3} \text{ in}$$

$$4.5\pi \text{ in}$$

$$\frac{3\pi}{7} \text{ in}$$

$$6\pi \text{ in}$$

$$7\pi \text{ in}$$