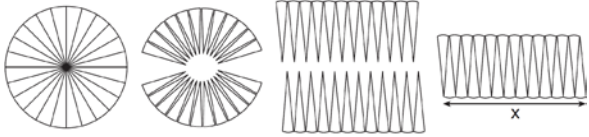


### G.GMD.A.1: Circumference

- 1 If the circumference of a circle is doubled, the diameter of the circle
  - 1) remains the same
  - 2) increases by 2
  - 3) is multiplied by 4
  - 4) is doubled
  
- 2 What is the diameter of a circle whose circumference is 5?
  - 1)  $\frac{2.5}{\pi^2}$
  - 2)  $\frac{2.5}{\pi}$
  - 3)  $\frac{5}{\pi^2}$
  - 4)  $\frac{5}{\pi}$
  
- 3 What is the approximate circumference of a circle with radius 3?
  - 1) 7.07
  - 2) 9.42
  - 3) 18.85
  - 4) 28.27
  
- 4 A circle with a radius of 5 was divided into 24 congruent sectors. The sectors were then rearranged, as shown in the diagram below.  


The diagram illustrates the process of approximating the circumference of a circle. On the left, a circle is divided into 24 congruent sectors. These sectors are then rearranged into a shape that resembles a parallelogram. The length of this shape is labeled as  $x$ .
  
- 5 A designer needs to create perfectly circular necklaces. The necklaces each need to have a radius of 10 cm. What is the largest number of necklaces that can be made from 1000 cm of wire?
  - 1) 15
  - 2) 16
  - 3) 31
  - 4) 32
  
- 6 Every time the pedals go through a  $360^\circ$  rotation on a certain bicycle, the tires rotate three times. If the tires are 24 inches in diameter, what is the minimum number of complete rotations of the pedals needed for the bicycle to travel at least 1 mile?
  - 1) 12
  - 2) 281
  - 3) 561
  - 4) 5,280
  
- 7 A wheel has a radius of 5 feet. What is the minimum number of *complete* revolutions that the wheel must make to roll at least 1,000 feet?
  
- 8 To measure the length of a hiking trail, a worker uses a device with a 2-foot-diameter wheel that counts the number of revolutions the wheel makes. If the device reads 1,100.5 revolutions at the end of the trail, how many miles long is the trail, to the *nearest tenth of a mile*?

To the *nearest integer*, the value of  $x$  is

- 1) 31
- 2) 16
- 3) 12
- 4) 10

**G.GMD.A.1: Circumference****Answer Section**

1 ANS: 4 REF: 060215a

2 ANS: 4

$$C = \pi d$$

$$5 = d\pi$$

$$d = \frac{5}{\pi}$$

REF: 069914a

3 ANS: 3

$$6\pi \approx 18.85$$

REF: 080108a

4 ANS: 2

$x$  is  $\frac{1}{2}$  the circumference.  $\frac{C}{2} = \frac{10\pi}{2} \approx 16$

REF: 061523geo

5 ANS: 1

$$\frac{1000}{20\pi} \approx 15.9$$

REF: 011623geo

6 ANS: 2

If the diameter of a tire is 2 feet, its circumference is  $2\pi$  feet. To travel 1 mile, or 5280 feet, the tires must rotate  $840.3 \left(\frac{5280}{2\pi}\right)$  times. The pedals must rotate  $281 \left(\frac{840.3}{3}\right)$  times.

REF: 010215b

7 ANS:

32. Circumference is  $10\pi$ .  $\frac{1000}{10\pi} \cong 32$

REF: 010437a

8 ANS:

1.3.  $C = 2\pi$ .  $1100.5 \times 2\pi \approx 6914.65 \text{ ft} \times \frac{1 \text{ mile}}{5280 \text{ ft}} \approx 1.3 \text{ miles}$

REF: 080027a