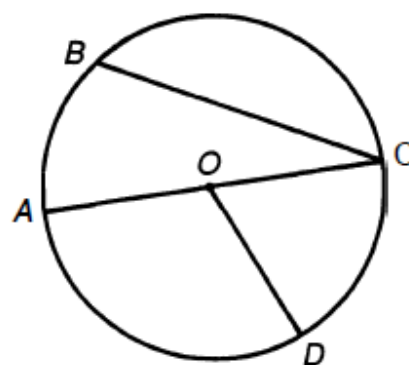


Geometry of Circles Puzzles

What Did the Waitress Mean When She Yelled to the Cook: “1 + 1”?

Fill in each blank with one of the answers at the bottom of the page. Then write the letter of the exercise above its correct answer.

The figure at the right is a circle with center at O .



- (E) The points on a circle are all the same distance from the _____.
- (S) A line segment from the center to any point on the circle is a _____.
- (U) A line segment with both endpoints on the circle is a _____.
- (I) A chord that passes through the center of a circle is a _____.
- (O) A diameter of the circle in the drawing above is the segment _____.
- (E) Which of the following is *not* a radius: \overline{OA} , \overline{OD} , or \overline{BC} ? _____.
- (S) Which of the following is *not* a chord: \overline{BC} , \overline{OA} , or \overline{AC} ? _____.
- (N) Part of a circle, such as between points B and C, is an _____.
- (E) An angle whose vertex is at the center of a circle is a _____.
- (P) Which of the following is *not* a central angle: $\angle AOD$, $\angle COD$, or $\angle BCA$? _____.
- (S) Points A, B, C, and D are all the same _____ from point O.
- (O) If the length of \overline{AC} is 20 cm, then the length of \overline{OC} is _____.
- (N) If the length of \overline{OA} is 20 cm, then the length of \overline{OD} is _____.
- (W) If the length of \overline{OD} is 20 cm, then the length of \overline{AC} is _____.
- (L) The length of a radius is _____ the length of a diameter.
- (T) The set of points in a plane at a fixed distance from a given point is a _____.

10 cm	arc	center	ray	$\angle BCA$	half	chord	\overline{OA}	$\angle COD$	\overline{AC}	20 cm	central angle	\overline{OD}	diameter	distance	80 cm	radius	circle	\overline{BC}	40 cm
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Why Did the Piano Player Bang Her Head Against the Keyboard?

Find the circumference (C) of each circle, given the diameter (d) or radius (r). Use 3.14 for π . Draw a straight line connecting the square by the exercise to the square by its answer. The line will cross a number and a letter. Write the letter in the matching numbered box at the bottom of the page.

① $d = 3$ cm ♦		♦ $C = 125.6$ in.
② $d = 8$ in. ♦	⑨	+ $C = 31.4$ cm
③ $d = 7$ cm ♦	⑬	♦ $C = 94.2$ in.
④ $d = 40$ in. ♦	⑬	♦ $C = 9.42$ cm
⑤ $d = 9.2$ cm ♦	⑬	♦ $C = 72.22$ in.
⑥ $d = 1.5$ in. ♦	②	+ $C = 301.44$ in.
⑦ $d = 600$ m ♦	②	♦ $C = 25.12$ in.
⑧ $d = 23$ in. ♦	②	♦ $C = 15.7$ in.
⑨ $d = 10$ cm ♦	②	♦ $C = 28.888$ cm
⑩ $r = 1$ in. ♦	②	♦ $C = 13.816$ cm
⑪ $r = 6$ cm ♦	②	+ $C = 15.7$ cm
⑫ $r = 15$ in. ♦	②	♦ $C = 21.98$ cm
⑬ $r = 2.2$ cm ♦	②	♦ $C = 6.28$ in.
⑭ $r = 48$ in. ♦	②	+ $C = 314$ m
⑮ $r = 3.9$ cm +	②	+ $C = 4.71$ in.
⑯ $r = 2.5$ in. ♦	②	♦ $C = 37.68$ cm
⑰ $r = 2.5$ cm ♦	②	♦ $C = 24.492$ cm
⑱ $r = 50$ m ♦	②	♦ $C = 1,884$ m

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
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Did You Hear About...

Answers A – I:

18.84 ft	GUY
71.8 ft	HELPED
1,570 m	BOX
51 ft	HAMBURGER
11.932 cm	A
12.56 cm	THE
44 ft	VEGETABLES
13.188 m	WHO
1,630 m	BIG
282.6 m	SILLY
31.4 cm	OF
62.8 ft	DUMPED
11.542 cm	OFF

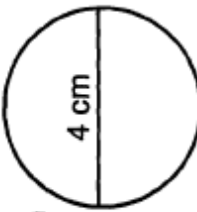
Answers J – R:

$5\frac{2}{7}$ in.	FRESH
22 in.	HE
37.68 ft	EARTH
88 in.	ON
34.5 ft	SUBMARINE
660 mm	WANTED
132 mm	BECAUSE
84.78 in.	ON
154 mm	THE
720 mm	JUMPED
$4\frac{5}{7}$ in.	PEAS
143 mm	TOP
33 ft	GROUND

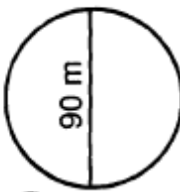
A	B	C	D	E	F
G	H	I	J	K	L
M	N	O	P	Q	R
					?

Find each answer in the appropriate answer column and notice the word under it. Write this word in the box containing the letter of the exercise.

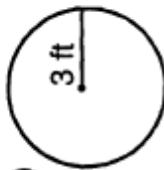
I. Find the circumference of each circle. Use 3.14 for π .



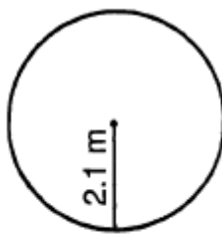
(A)



(B)



(C)



(D)

(E) $d = 20$ ft

(F) $d = 3.8$ cm

(G) $r = 250$ m

(H) $r = 5$ cm

II. Find the circumference of each circle. Use $\frac{22}{7}$ for π .

(I) $d = 14$ ft

(J) $d = 28$ in.

(K) $d = 49$ mm

(L) $d = 10\frac{1}{2}$ ft

(M) $r = 21$ mm

(N) $r = 3\frac{1}{2}$ in.

(O) $r = 105$ mm

(P) $r = \frac{3}{4}$ in.

III. Solve. Use 3.14 for π .

- (Q) The wheels on a bicycle have a diameter of 27 in. How far does the bicycle travel with each turn of the wheels?

(R) The minute hand of a large clock is 6 ft long. How far does the point of the hand move in one hour?

What Do You Call It When a Bunch of Kids Throw Circles at Each Other?

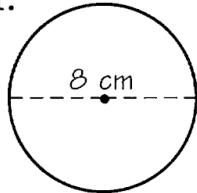
47.1 in.
2.2 ft
1909 m
38.6 m
288.4 yd
22.5 ft
52.9 cm
16.3 in.
219.8 yd
44.7 cm
243.4 yd
6.3 m
23.9 ft
0.42 in.
1672 m
288 in.
25.1 cm
51.4 ft
7.5 in.
15.1 m
7.8 m
275.6 in.
0.35 in.
25 in.
188.4 ft
1570 m
1.7 ft

Cross out the letter next to each correct answer.

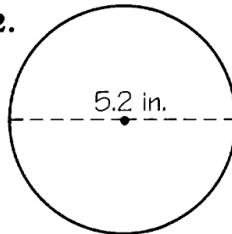
Most answers are rounded. Use 3.14 for π .

Use the diameter (d) or radius (r) to find the circumference.

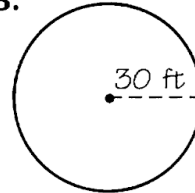
1.



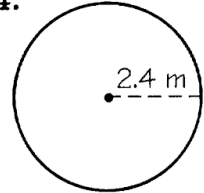
2.



3.

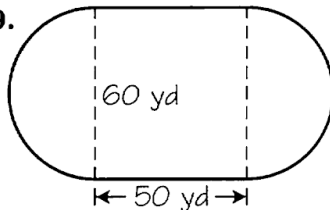


4.

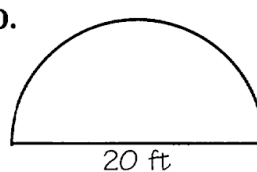
5. $d = 15$ in.6. $d = 70$ yd7. $r = 250$ m8. $r = 3.8$ ft

Find the perimeter. All curves shown are semicircles.

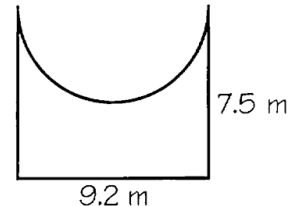
9.



10.



11.



Solve.

12. A dartboard has a circumference of 78.5 in. What is the diameter?

13. A clock has a circumference of 166 cm. What is the diameter?

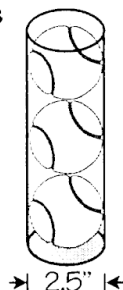
14. A pizza has a circumference of 47.1 in. What is the radius?

15. A tire has a circumference of 10.7 ft. What is the radius?

16. The first Ferris wheel, designed by George Ferris, was built in 1893 in Paris, France. It had a diameter of 76 m. About how far would you travel in 8 turns of this wheel?

17. A 10-speed bicycle tire has a diameter of 27 in. In highest gear, the tire rotates 3.4 times with each pedal turn. About how far does the bike travel, in this gear, with each pedal turn?

18. A can contains 3 tennis balls, tightly packed. Each ball has a diameter of 2.5 in. How much greater is the circumference of the can than the height of the can?



19. Two runners are to race one lap on a circular track. The radius to the inside lane is 50 m. The radius to the outside lane is 51 m. How much of a head start should the runner on the outside get?

