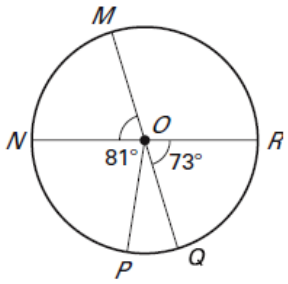
Geometry H
10.2 Homework: Find Arc Measures

Name: _____
Date: _____ Period: _____

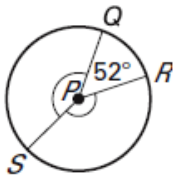
$\overline{MQ}$ and $\overline{NR}$ are diameters of $\odot O$. Determine whether the given arc is a *major arc*, *minor arc*, or *semicircle*. Then find the measure of the arc.

1. $\overset{\frown}{MN}$
2. $\overset{\frown}{NQ}$
3. $\overset{\frown}{NQR}$
4. $\overset{\frown}{MRP}$
5. $\overset{\frown}{PN}$
6. $\overset{\frown}{MNQ}$
7. $\overset{\frown}{QR}$
8. $\overset{\frown}{MR}$
9. $\overset{\frown}{QMR}$
10. $\overset{\frown}{PQ}$
11. $\overset{\frown}{PRN}$
12. $\overset{\frown}{MQN}$

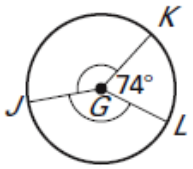


Find the indicated arc measure.

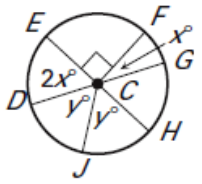
13. $m\overset{\frown}{QS}$



14. $m\overset{\frown}{LKJ}$

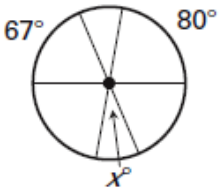


15. $m\overset{\frown}{DH}$

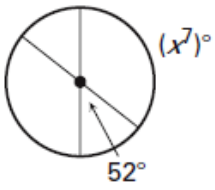


Find the value of *x*.

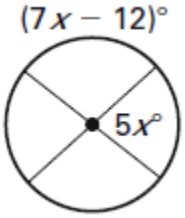
16.



17.



18.



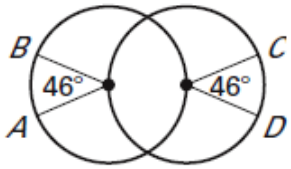
$\overline{AC}$ and $\overline{BD}$ are diameters of $\odot E$. Find the measure of the given arc if $m\overset{\frown}{ACD} = 316°$.

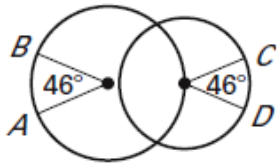
19. $m\overset{\frown}{AD}$
20. $m\overset{\frown}{BC}$
21. $m\overset{\frown}{BCA}$
22. $m\overset{\frown}{DCB}$

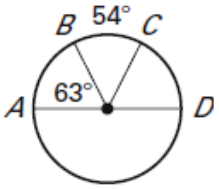
$\overline{RT}$ and $\overline{PS}$ are diameters of $\odot N$. Find the measure of the given arc if $m\overset{\frown}{TP} = 47°$.

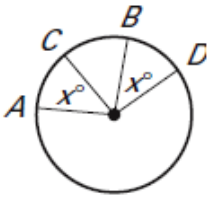
23. $m\overset{\frown}{ST}$
24. $m\overset{\frown}{PR}$
25. $m\overset{\frown}{RTP}$
26. $m\overset{\frown}{STR}$

Tell whether $\overset{\frown}{AB} \cong \overset{\frown}{CD}$. *Explain.*

27. 

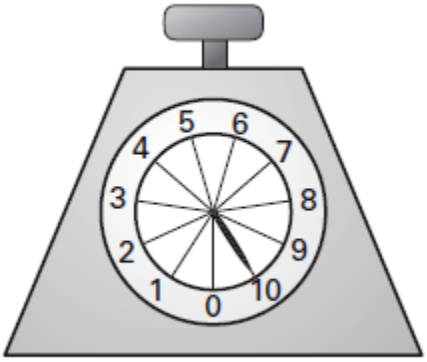
28. 

29. 

30. 

In Exercises 31 – 35, use the following information.

Game Timer The device shown is a 10-second game timer. The top plunger button alternatively stops and starts the timer. For game play, the timer is started at 10 (as shown) and moves counterclockwise. Players often start and stop the timer several times before it reaches 0. Give all answers to the nearest tenth.



31. What is the measure of the arc traced out by the tip of the pointer as it moves from one number to the next?

32. What is the measure of the arc traced out as the pointer moves from the 10 to the 0?

33. A player starts the timer at the 10 and stops it after 3.4 seconds. What is the measure of the arc generated?

34. A player starts the timer after 2.3 seconds, then after 1.2 seconds, an again after 2.5 seconds. What is the sum of the measures of the arcs?

35. How much time does it take the pointer to trace out an arc of 60°?

Answer Key

1. minor arc; 73°
2. minor arc; 107°
3. semicircle; 180°
4. major arc; 206°
5. minor arc; 81°
6. semicircle; 180°
7. minor arc; 73°
8. minor arc; 107°
9. major arc; 287°
10. minor arc; 26°
11. major arc; 279°
12. major arc; 287°
13. 154°
14. 217°
15. 120°
16. 33
17. 2
18. 16
19. 44°
20. 44°
21. 224°
22. 180°
23. 133°
24. 133°
25. 227°
26. 313°
27. yes; The circles pass through each other's center, so they have ≅ radii and the circles are therefore ≅. Arcs with equal measure in ≅ circles are ≅.
28. no; One circle is smaller than the other, so the arcs cannot be ≅.
29. yes; Both arcs measure 63°.
30. yes; Because $\overset{\frown}{mAC} = \overset{\frown}{mBD}$ you can use the Addition Prop. of Equality to deduce that $\overset{\frown}{AB} \cong \overset{\frown}{CD}$
31. 32.7°
32. 327.3°
33. 111.3°
34. 196.4°
35. 1.8 secondS