Assignment 1

kummitha jhanavi

March 2022

Question : In the figure given below 'O' is the center of the circle if QR = OP and ∠ ORP = 20 . Find the value of x giving resons.

SOLUTION:

Radius r,

OP = OQ = r

Given, QR = OP

OP = OQ = QR =r

In Δ OQR , OQ = QR

∠ QOR = ∠ ORP = 20

And ∠ OQP = ∠ QOR + ∠ ORQ because exterior angle of a triangle is equal to the sum ofthe two opposite interior angles

∠ OQP = 20 + 20

∠ OQP = 40

Now in Δ OPQ

sum of angles in a triangle is 180

∠ POQ = 180 - (∠ OPQ + ∠ OQP)

∠ POQ = 180 - 40 - 40

∠ POQ = 100

Now ∠ x + ∠ POQ + ∠ QOR = 180 (sum of angles in straight is 180)

∠ x + 100 + 20 = 180

∠ x = 60

hence value of x is 60 degree

(b) In the figure given below 'O' is the centre of the circle. If QR = OP and ∠ORP = 20°. Find the value of 'x' giving reasons. [3]

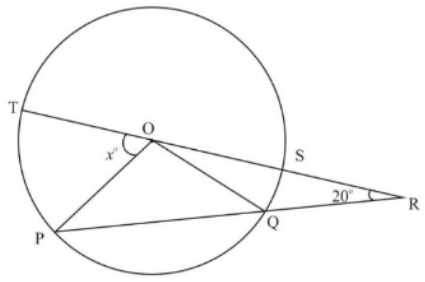

Figure 1: figure

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assignment 1 figure.jpg

main.tex

```
1  \documentclass{article}
2  \usepackage[utf8]{inputenc}
3  \usepackage{graphicx}
4
5  \title{Assignment 1}
6  \author{kummitha jhanavi }
7  \date{March 2022}
8
9  \begin{document}
10
11 \maketitle
12 \begin{figure}
13     \centering
14     \includegraphics[width=\linewidth]{assignment 1 figure.jpg}
15     \caption{figure}
16     \label{fig:my_label}
17 \end{figure}
18
19 Question : In the figure given below 'O' is the center of the circle
   if QR = OP and $\angle$ ORP = 20 . Find the value of x giving resons.
20
21 SOLUTION:
22
23 Radius r,
24
25 OP = OQ = r
26
27 Given, QR = OP
```

File outline

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assignment 1 figure.jpg

main.tex

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```
27  Given, QR = OP
28
29  OP = OQ = QR =r
30
31  In $\Delta$ OQR , OQ = QR
32
33  $\angle$ QOR =  $\angle$ ORP = 20
34
35  And $\angle$ OQP = $\angle$ QOR + $\angle$ ORQ
36  because exterior angle of a triangle is equal to the sum ofthe two
    opposite interior angles
37
38  $\angle$ OQP = 20 + 20
39
40  $\angle$ OQP = 40
41
42  Now in $\Delta$ OPQ
43
44  sum of angles in a triangle is 180
45
46  $\angle$ POQ = 180 - ( $\angle$ OPQ + $\angle$ OQP )
47
48  $\angle$ POQ = 180 - 40 - 40
49
50  $\angle$ POQ = 100
51
52  Now $\angle$ x + $\angle$ POQ + $\angle$ QOR = 180  (sum of angles in
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∠ x + 100 + 20 = 180

∠ x = 60

assignment 1 figure.jpg

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Source | Rich Text | Ω | Recompile

```
42  Now in $\Delta$ OPQ
43
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45
46  $\angle$ POQ = 180 - ( $\angle$ OPQ + $\angle$ OQP )
47
48  $\angle$ POQ = 180 - 40 - 40
49
50  $\angle$ POQ = 100
51
52  Now $\angle$ x + $\angle$ POQ + $\angle$ QOR = 180  (sum of angles in
    straight is 180)
53
54  $\angle$ x + 100 + 20 = 180
55
56  $\angle$ x = 60
57
58  hence value of x is 60 degree
59
60
61
62
63
64
65
66
67  \end{document}
68
```

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∠ x = 60

python code for assignment 1.py - C:\Users\lenovo\AppData\Local\Programs\Python\Python310\python code for assignment 1.py (3.10.4)

File Edit Format Run Options Window Help

```
Python 3.10.4 (tags/v3.10.4:9d38120, Mar 23 2022, 23:13:41) [MSC v.1929 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
x =input("Enter the value of angle x:")
Enter the value of angle x:60
print("We know that OP = OQ = r , r is radius")
We know that OP = OQ = r , r is radius
print("Here in triangle POQ is isosceles triangle with two sides (OP = OQ) as equal, Therefore angle OPQ and angle OQP are equal")
Here in triangle POQ is isosceles triangle with two sides (OP = OQ) as equal, Therefore angle OPQ and angle OQP are equal
print("Consider angle OPQ as A implies that angle OQP is A")
Consider angle OPQ as A implies that angle OQP is A
print("Consider angle POQ as C")
Consider angle POQ as C
print("Consider angle QOR as B")
Consider angle QOR as B
print("We need to find value of angle B")
We need to find value of angle B
A = input(40)
40
print("Sum of all angles in a triangle is 180")
Sum of all angles in a triangle is 180
print("In triangle POQ, angles A+A+C = 180")
In triangle POQ, angles A+A+C = 180
print("This implies that C = 180 - 40 - 40")
This implies that C = 180 - 40 - 40
print("C = 100")
C = 100
print("Sum of angles in straight line is 180")
Sum of angles in straight line is 180
print("x + C + B = 180")
x + C + B = 180
print("60 + 100 +B = 180")
60 + 100 +B = 180
print("B = 20")
B = 20
print("Given angle ORP = 20")
Given angle ORP = 20
print(" hence angle QOR = angle = ORP = 20")
 hence angle QOR = angle = ORP = 20
print("Hence triangle QOR is isosceles triangle")
Hence triangle QOR is isosceles triangle
print("Therefore QR = OQ, We know OQ = OP  implies that QR = OP")
```


Ln: 1 Col: 0

```
print("Consider angle OPQ as A implies that angle OQP is A")
Consider angle OPQ as A implies that angle OQP is A
print("Consider angle POQ as C")
Consider angle POQ as C
print("Consider angle QOR as B")
Consider angle QOR as B
print("We need to find value of angle B")
We need to find value of angle B
A = input(40)
40
print("Sum of all angles in a triangle is 180")
Sum of all angles in a triangle is 180
print("In triangle POQ, angles A+A+C = 180")
In triangle POQ, angles A+A+C = 180
print("This implies that C = 180 - 40 - 40")
This implies that C = 180 - 40 - 40
print("C = 100")
C = 100
print("Sum of angles in straight line is 180")
Sum of angles in straight line is 180
print("x + C + B = 180")
x + C + B = 180
print("60 + 100 +B = 180")
60 + 100 +B = 180
print("B = 20")
B = 20
print("Given angle ORP = 20")
Given angle ORP = 20
print(" hence angle QOR = angle = ORP = 20")
 hence angle QOR = angle = ORP = 20
print("Hence triangle QOR is isosceles triangle")
Hence triangle QOR is isosceles triangle
print("Therefore QR = OQ, We know OQ = OP  implies that QR = OP")
Therefore QR = OQ, We know OQ = OP  implies that QR = OP
print("hence for x = 60 , QR = OP,hence proved

SyntaxError: unterminated string literal (detected at line 1)
print("For x = 60 , QR = OP , hence proved")

For x = 60 , QR = OP , hence proved
```