Analytic Geometry

March 17, 2016

Inscribed and Circumscribed Angles.

EQ: How is the central angle of a circle and an inscribed angle related?

MCC9-12.G.C.2 Identify and describe relationships among inscribed angles, radii, and chords. Include the relationship between central, inscribed, and circumscribed angles; inscribed angles on a diameter are right angles, the radius of a circle is perpendicular to the tangent where the radius intersects the circle.

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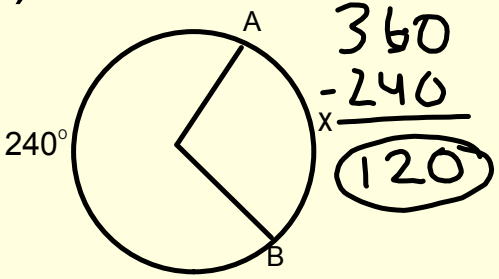
Quiz:

Circle Vocabulary

Mar 15-8:30 AM

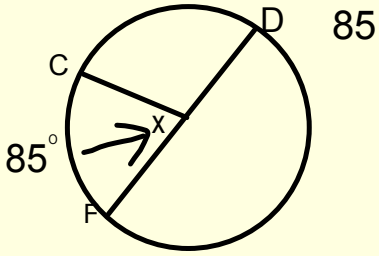
Warm-up

1) Find x

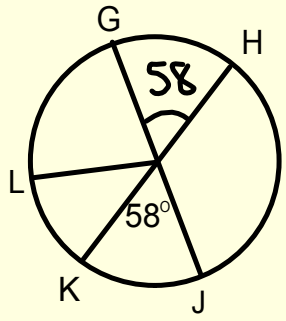


360
-240
120°

2) Find x

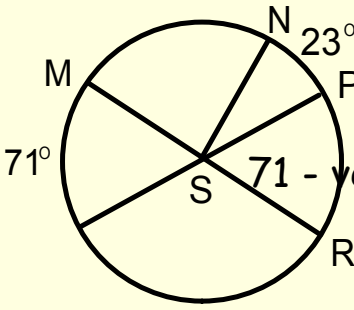


3) Find arcGHK



180
+58
238

4)



71 - vertical angles

Oct 26-9:44 AM

Homework Answers

1) 120^{0}

2) 123^{0}

3) 306^{0}

4) 234^{0}

5) 125^{0}

6) 8

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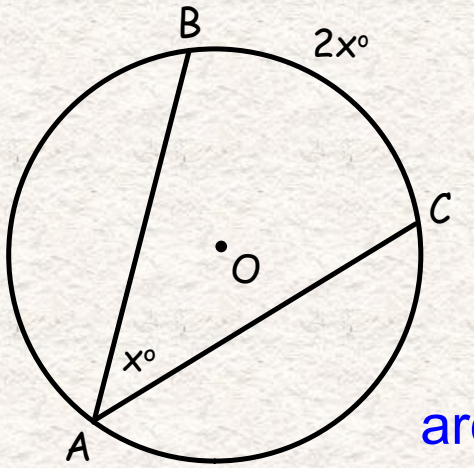
Inscribed Angles



Properties of Inscribed Angles

- vertex lies on the circle

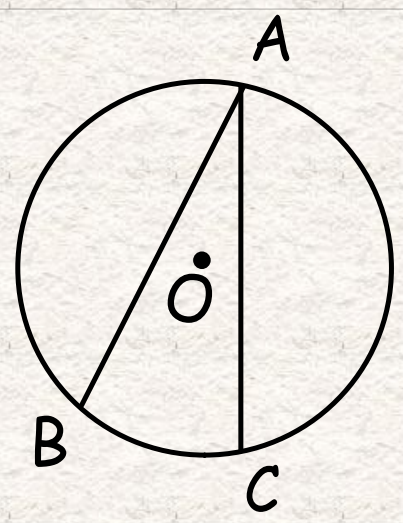
- sides are chords of the circle.

- corresponding arc is equal to twice the measure of the inscribed angle.

arc = 2(angle) or angle = $\frac{\text{arc}}{2}$

Let's Practice

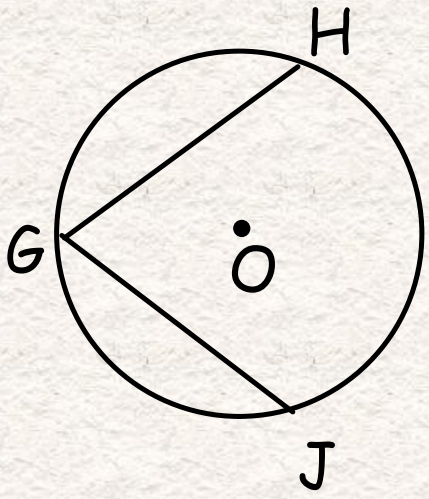
1)



If $\angle BAC = 31^\circ$,

$\overset{\frown}{mBC} = ?$ 62

2)



If $\angle HGJ = 84^\circ$,

$\overset{\frown}{mHJ} = ?$ 168

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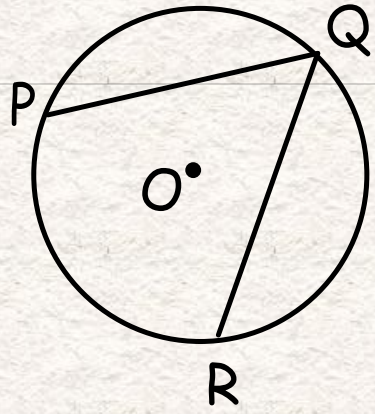
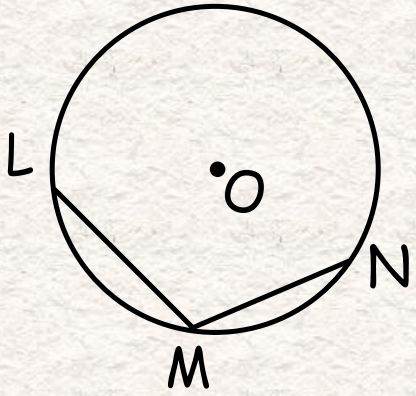
3)



If $\overset{\frown}{mPR} = 160°$

$\angle PQR = ?$ 80

4)



If $\overset{\frown}{mLN} = 240°$

$\angle LMN = ?$ 120

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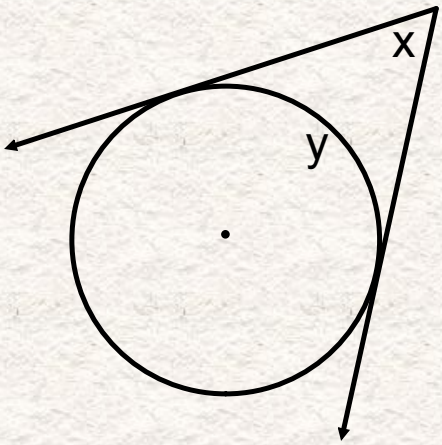
Circumscribed Angles



Properties of Circumscribed Angles

- vertex lies outside of the circle.

- sides are tangents of the circle.

- circumscribed angle and corresponding arc sum to 180°.

$x + y = 180^{o}$

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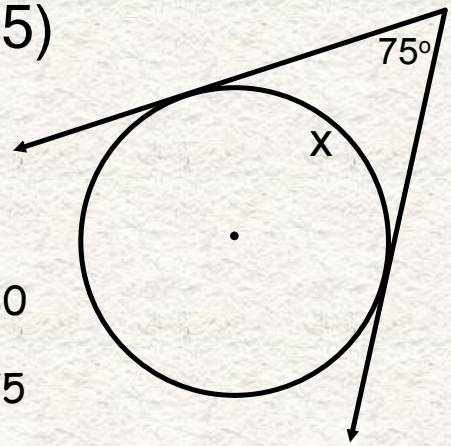
Let's Practice

5)

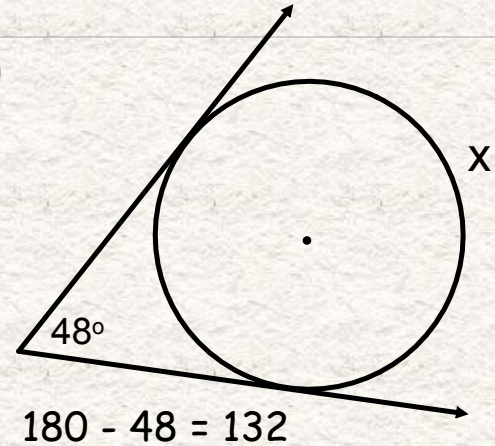


180

-75

105

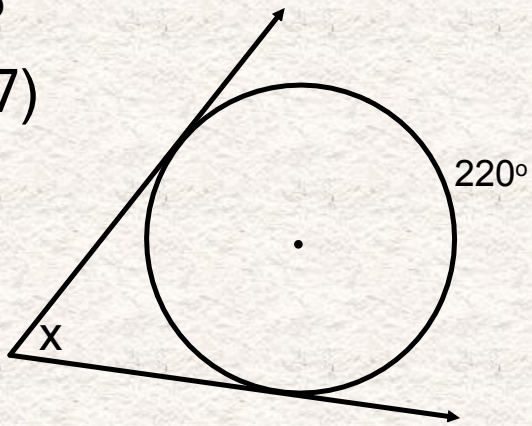
6)



180 - 48 = 132

360 - 132 = 228

7)



360 - 220 = 140

140/2 = 70

x=70

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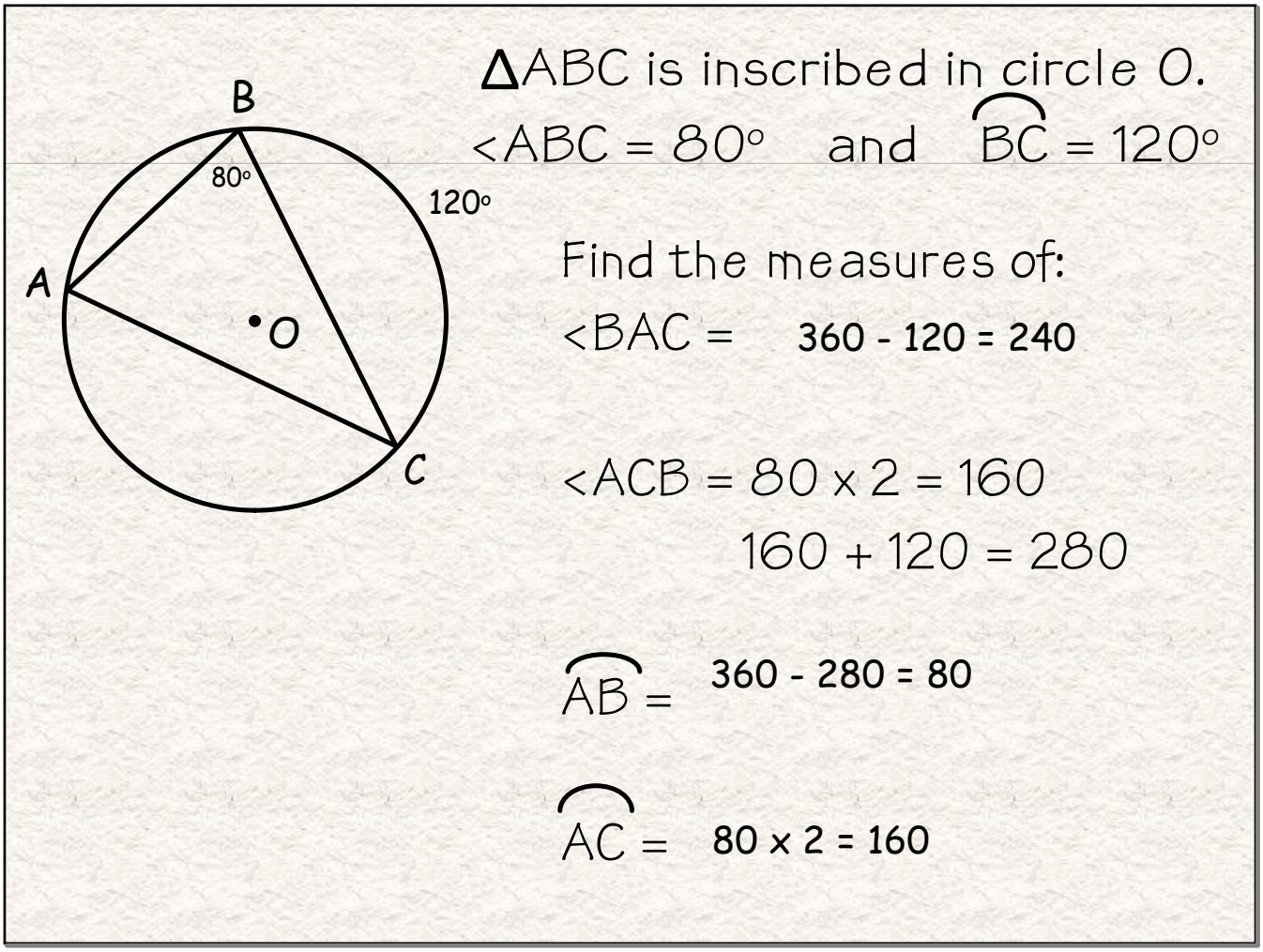
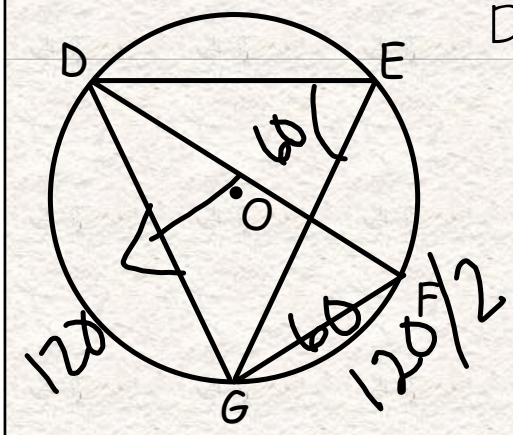

ΔABC is inscribed in circle O.
<ABC = 80° and BC = 120°
B
80°
120°
A
O
C
Find the measures of:
<BAC = 360 - 120 = 240
<ACB = 80 x 2 = 160
160 + 120 = 280
AB = 360 - 280 = 80
AC = 80 x 2 = 160



ΔDGE is an equilateral triangle

$\overline{DF}$ bisects $\angle EDG$.

Find the measure of:

$\angle DEG =$ 180 / 3 = 60 for each angle.

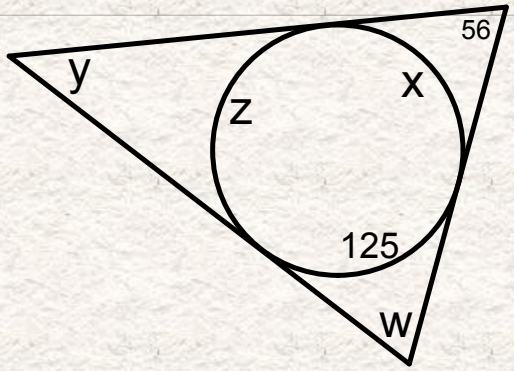
$\overset{\frown}{DG} =$ 60 x 2 = 120

$\overset{\frown}{FE} =$ 60 x 2 = 120

120 / 2 (bisector) = 60

$\angle DGF =$ 180

Find the missing measures.



w = (180 - 125) = 55

x = (180 - 56) = 124

y = 180 - (55+56)= 69

z = 180 - 69 = 111

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HW: Worksheet

On-line and textbook help references: pp. 209 - 518

- https://learnzillion.com/lessons/3249-find-relationships-between-central-and-circumscribed-angles
- https://www.khanacademy.org/math/geometry/cc-geometry-circles/central-inscribed-circumscribed/e/central--inscribed--and-circumscribed-angles
- http://www.cliffsnotes.com/math/geometry/circles/arcs-and-inscribed-angles

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