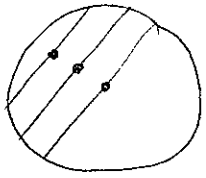
Geometry 400
9-1 to 9-2 worksheet

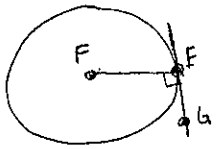
Name Key

1. Draw a circle and several parallel chords.
What do you think is true of the midpoints of all such chords?

They lie on diameter



2. Draw a circle with center F and a line $\overleftrightarrow{EG}$ tangent to circle F at E.
Draw $\overline{FE}$ and find $m\angle FEG$.



$m\angle FEG = 90°$

3. Find the diameter of a circle with radius:

$r = 8$	$d =$ 16
$r = 5.2$	$d =$ 10.4
$r = 4\sqrt{3}$	$d =$ $8\sqrt{3}$

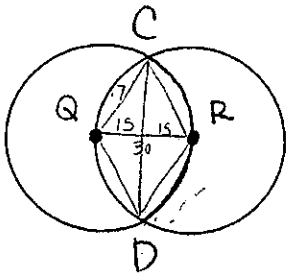
4. Find the radius of a sphere with diameter:

$d = 14$	$r =$ 7
$d = 3\sqrt{10}$	$r =$ $\frac{3\sqrt{10}}{2}$
$d = 6x$	$r =$ $3x$

5. Draw a circle with a given radius. Surround this circle of tangent circles with the same radius.
How many circles fit exactly around the inner circle?

equil. $\triangle$ $(60°)$ - We can fit 6, $60°$ $\angle$s around the inner $\odot$

6. Circle Q and Circle R are congruent circles that intersect at C and D.
$\overline{CD}$ is called the common chord of the circles.



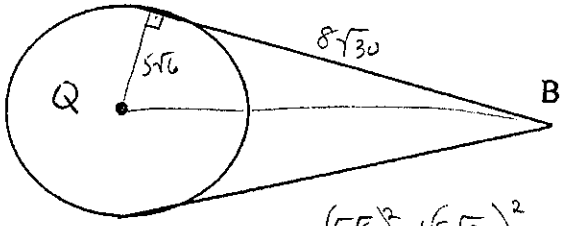
a) What kind of quadrilateral is QDRC? Why? Rhombus
Radii $\cong$

b) $\overline{CD}$ must be the perpendicular bisector of $\overline{QR}$. Why?
diag. Rhombus $\perp$

c) If QC = 17 and QR = 30, find CD.

$15^2 + x^2 = 17^2$ $x = 8$ $CD = 16$

7.



Circle Q has radius $5\sqrt{6}$
Each tangent has length $8\sqrt{30}$

Find QB: $3\sqrt{230}$

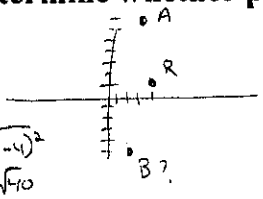
$(5\sqrt{6})^2 + (8\sqrt{30})^2 = QB^2$
$150 + 1920 = QB^2$
$\sqrt{2070} = QB$
$3\sqrt{230}$

Geometry 400 Name_____

Determine whether the statement is always, sometimes, or never true.

1. The longest chord of a circle is a diameter. always
2. A chord of a circle can be a radius. never
3. A tangent of a circle contains a chord. never
4. A secant of a circle contains a chord. always
5. A secant of a circle contains a diameter. sometimes

Circle R contains point A. Determine whether point B is an <u>interior</u> point, an <u>exterior</u> point, or <u>on</u> the circle.



6. R(4, 1), A(3, 7), B(2, –5) Exterior Point

$D=\sqrt{(7-1)^2+(3-4)^2}$ $D=\sqrt{(-5-1)^2+(2-4)^2}$

$\sqrt{36+1}=\sqrt{37}$ $D=\sqrt{36+4}=\sqrt{40}$

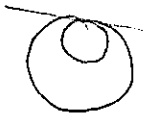
7. R(–3, –2), A(–9, –2), B(–3, 4) on circle

$D=\sqrt{(-9-(-3))^2+(-2-(-2))^2}$ $D=\sqrt{(-3+3)^2+(4+2)^2}$

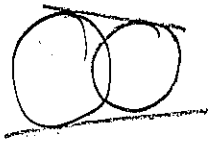
$D=\sqrt{6\cdot 6}=6$ $D=6$

Draw two circles having:

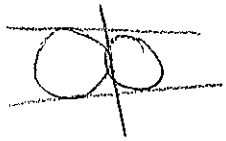
8. only one common external tangent



9. only two common external tangents and no common internal tangents.



10. only two common external tangents and one common internal tangent.



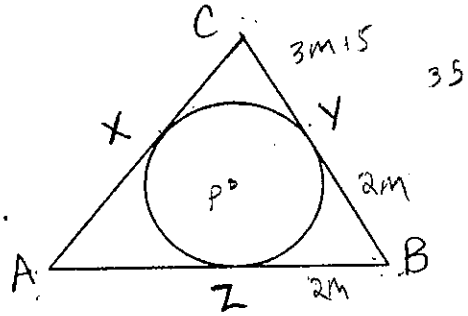
11. no common tangents

ΔABC is circumscribed about circle P. X, Y, and Z are the points of tangency.

12. XC = 12, BC = 21, BY = 9.

13. AX = 8, AB = 24, BZ = 16.

14. BZ = 2m, CY = 3m + 5, BC = 35, m = 6.



$2m+3m+5=35$

$5m=30$

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