Math III

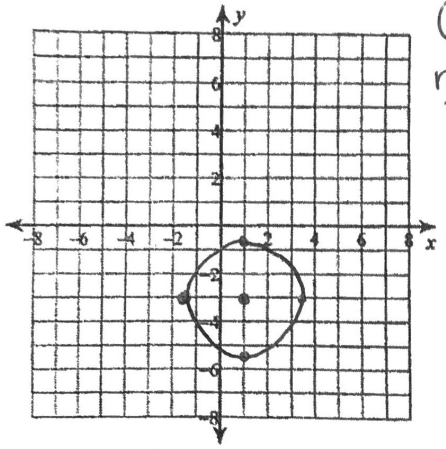
Name answer key

Unit 5 Study Guide

Date _____ Period ____

Identify the center and radius of each. Then sketch the graph.

1) $(x-1)^2+(y+3)^2=5$



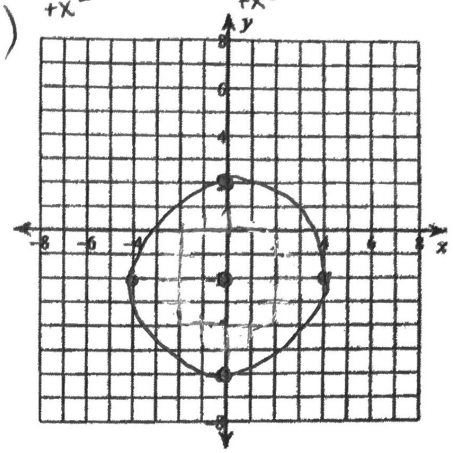
Center: $(1,-3)$

radius $=\sqrt{5}$

≈ 2.23

2) $y^2-12+4y=-x^2$

$+x^2$ $+x^2$



$x^2+y^2-12+4y=0$

$+12$ $+12$

$x^2+y^2+4y=12$

$x^2+(y^2+4y)=12$

$x^2+(y+2)^2=12+4$

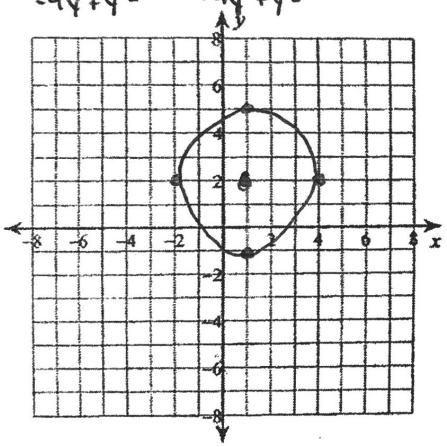
$x^2+(y+2)^2=16$

center: $(0,-2)$

radius: 4

3) $x^2+4-2x=4y-y^2$

$-4y+y^2$ $-4y+y^2$



$x^2-2x+y^2-4y+4=0$

-4 -4

$x^2-2x+y^2-4y=4$

$(x^2-2x)+(y^2-4y)=4$

$(x-1)^2+(y-2)^2=4+1+4$

$(x-1)^2+(y-2)^2=9$

center: $(1,2)$

radius $=3$

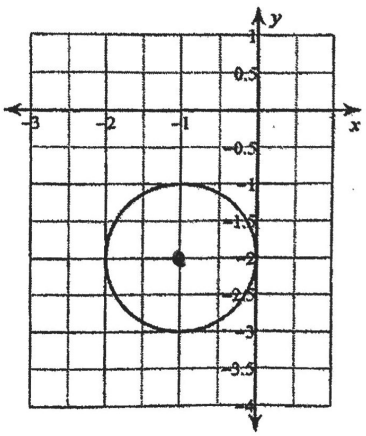
Use the information provided to write the equation of each circle.

4) Center: $(6, 5)$

Radius: 4

$(x-6)^2+(y-5)^2=16$

5)



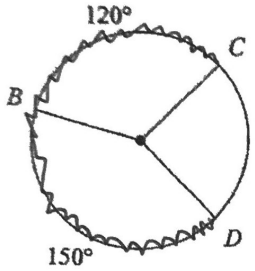
center: $(-1,-2)$

radius $=1$

$(x+1)^2+(y+2)^2=1$

Find the measure of the arc or central angle indicated. Assume that lines which appear to be diameters are actual diameters.

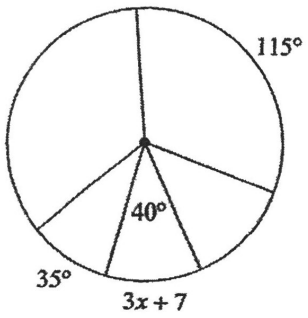
6) $m\overset{\frown}{DBC}$



$$\begin{array}{r} 150 \\ +\ 120 \\ \hline 270^\circ \end{array}$$

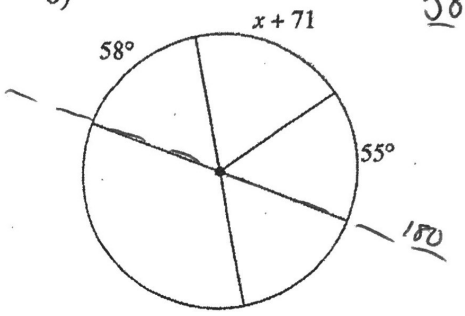
Solve for x. Assume that lines which appear to be diameters are actual diameters.

7)



$40 = 3x + 7$
$-7 \quad -7$
$\frac{33}{3} = \frac{3x}{3}$
$11 = x$

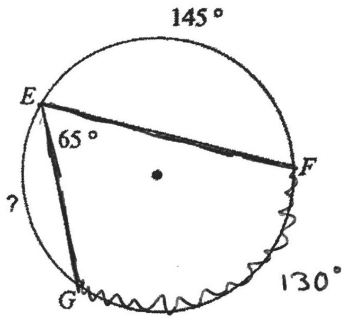
8)



$58 + 55 + (x + 71) = 180$
$x + 184 = 180$
$-184 \quad -184$
$x = -4$

Find the measure of the arc or angle indicated.

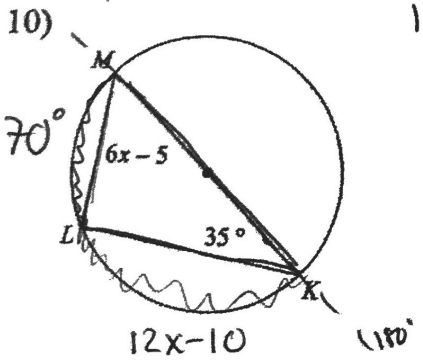
9)



$? = 360^\circ - 130^\circ - 145^\circ$
$? = 85^\circ$

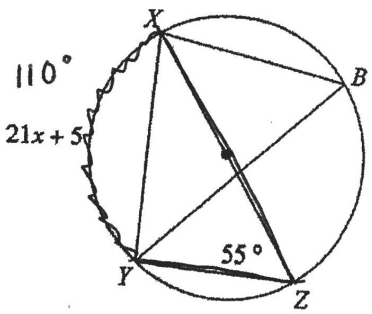
Solve for x.

10)



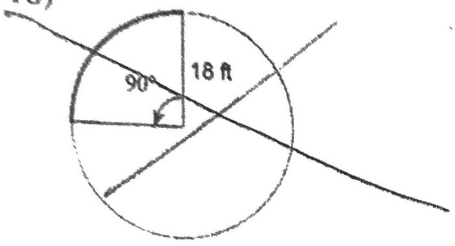
$70 + (12x - 10) = 180$
$12x + 60 = 180$
$-60 \quad -60$
$\frac{12x}{12} = \frac{120}{12}$
$x = 10$

11)

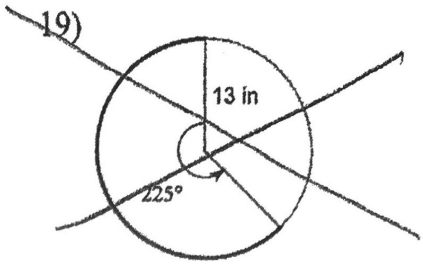


$21x + 5 = 110^\circ$
$-5 \quad -5$
$\frac{21x}{21} = \frac{105}{21}$
$x = 5$

18)

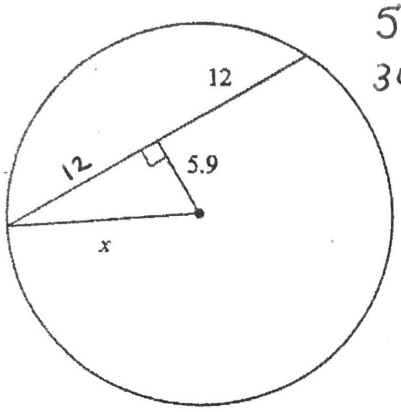


19)



Find the length of the segment indicated. Round your answer to the nearest tenth if necessary.

20)



$5.9^2+12^2=x^2$

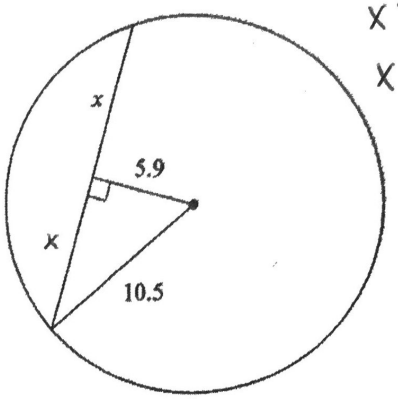
$34.81+144=x^2$

$178.81=x^2$

$\sqrt{178.81}=x$

$13.4=x$

21)



$x^2+5.9^2=10.5^2$

$x^2+34.81=110.25$

$-34.81 \quad -34.81$

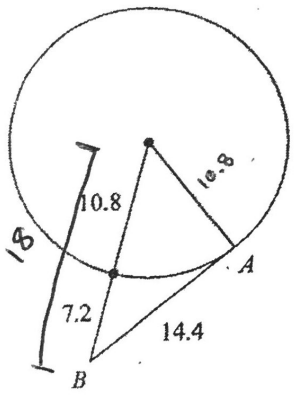
$x^2=75.44$

$x=\sqrt{75.44}$

$x=8.7$

Determine if line AB is tangent to the circle.

22)



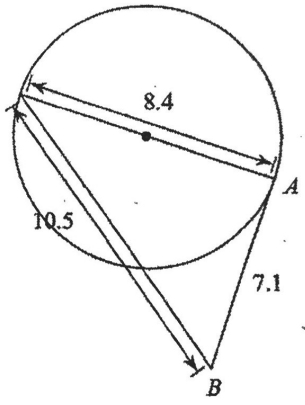
$10.8^2+14.4^2=18^2$

$116.64+207.36=324$

$324=324$

yes, AB is tangent to the circle

23)



$8.4^2+7.1^2=10.5^2$

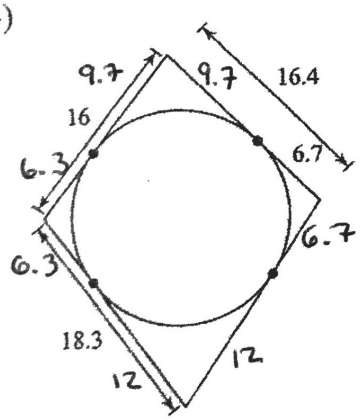
$70.56+50.41=110.25$

$120.97 \neq 110.25$

no, AB is not tangent to the circle

Find the perimeter of each polygon. Assume that lines which appear to be tangent are tangent.

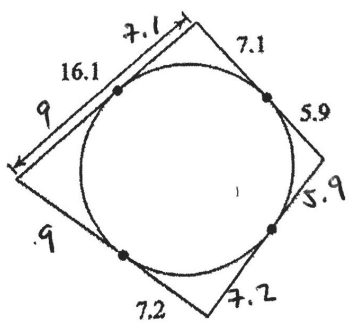
24)



$12+6.7+16.4+16+18.3$

69.4

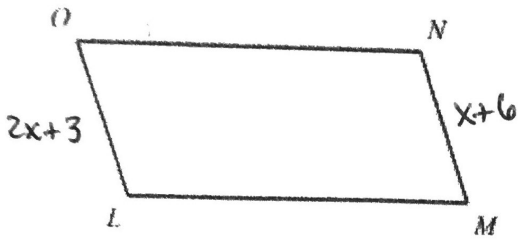
25)



$9+7.2+7.2+5.9+5.9+7.1+16.1$

58.4

22. $LMNO$ is a parallelogram. If $NM = x + 6$ and $OL = 2x + 3$, find the value of x and then find NM and OL.

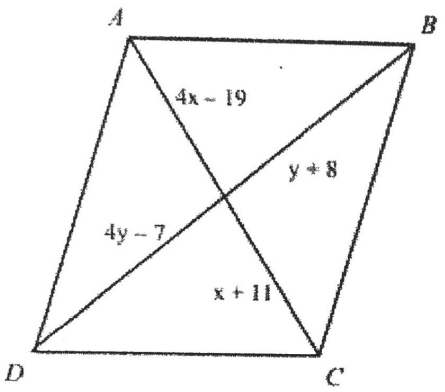


$2x+3 = x+6$
$-x \quad -x$
$x+3 = 6$
$-3 \quad -3$
$x = 6$

$NM = (6)+6 = 12$

$OL = 2(6)+3 = 15$

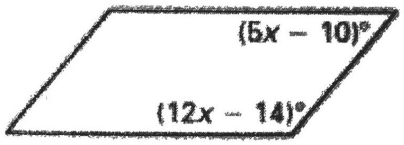
23. Find values of x and y for which $ABCD$ must be a parallelogram. The diagram is not to scale.



$4x - 19 = x + 11$
$-x \quad -x$
$3x - 19 = 11$
$+19 \quad +19$
$\frac{3x}{3} = \frac{30}{3}$
$x = 10$

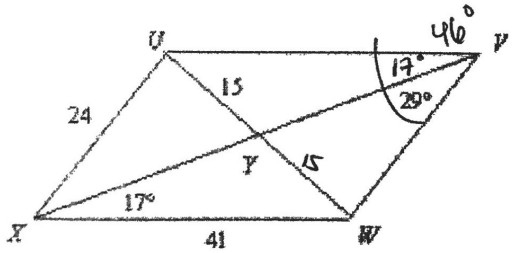
$4y - 7 = y + 8$
$-y \quad -y$
$3y - 7 = 8$
$+7 \quad +7$
$\frac{3y}{3} = \frac{15}{3}$
$y = 5$

24. For what value of x will the quadrilateral be a parallelogram?



$(5x-10) + (12x-14) = 180$
$17x - 24 = 180$
$+24 \quad +24$
$\frac{17x}{17} = \frac{204}{17}$
$x = 12$

25. Refer to the figure below.



Given: $UVWX$ is a parallelogram, $m\angle WXV = 17°$, $m\angle WVX = 29°$, $XW = 41$, $UX = 24$, $UY = 15$

a. Find $m\angle WVU$. $= 29° + 17° = 46°$

b. Find WV. $= 24$

c. Find $m\angle XUV$. $= 180° - 46° = 134°$

d. Find UW. $= 15 + 15 = 30$