Geometry   Name ___Key___   ID: 1

2nd Semester Final Review   Date __2015__   Period ____

$A = \frac{1}{2}aP$

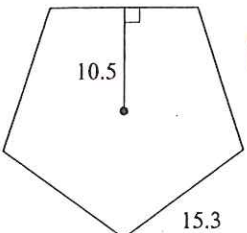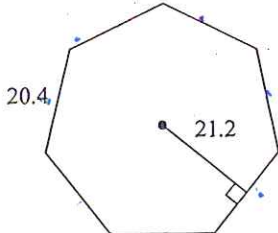**Give the name and find the area of each regular polygon. Round your answer to the nearest tenth if necessary.**

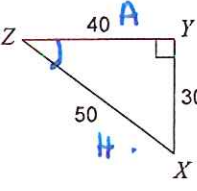1)   pentagon

10.5

15.3

$A = \frac{1}{2}(10.5)(76.5)$

$A = 401.6$

2)   heptagon

20.4

21.2

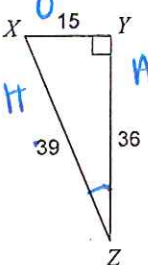$A = \frac{1}{2}(21.2)(142.8)$

$A = 1513.7$

$180(n-2)$ →360°

Give the name and find the interior angle sum, the measure of 1 exterior angle, and the measure of 1 interior angle in the regular polygons below.
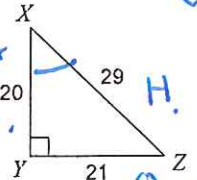
3)   hexagon
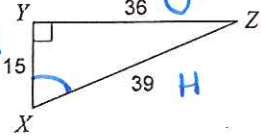ext. $360 \div 6 = 60°$

$180(6-2)$
$720 \div 6$

$int = 120°$

4)   nonagon
$180(9-2)$
1260
$140 = interior$

$exterior = 40°$

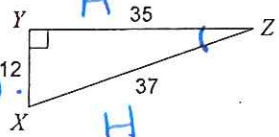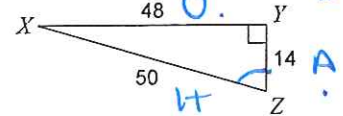**Find the value of each trigonometric ratio.** $S\frac{O}{H}$ $C\frac{A}{H}$ $T\frac{O}{A}$

5) sin Z

Z 40 A Y
50   30
H   X

$sinZ = \frac{30}{50}$
$sin^{-1}(30/50)$

$Z = 36.9°$

6) sin Z

X 15 Y
H   A
39   36
Z

$sinZ = \frac{15}{39}$
$sin^{-1}(15/39)$
$Z = 22.6°$

7) cos X

X
A 20 29
Y 21 Z
H.   O

$cosX = \frac{20}{29}$
$X = 46.4°$

8) cos X

Y 36 O Z
A 15
D   39 H
X

$cosY = \frac{15}{39}$
$X = 67.4°$

9) tan Z

Y A 35 Z
O 12   37
X   H

$tanZ = \frac{12}{35}$
$Z = 18.9°$

10) tan Z

X 48 O Y
50   14 A
H   Z

$tanZ = \frac{48}{14}$
$Z = 73.7°$

-1-

Find the area of each.

11)

$A = 1/2bh$
$A = 1/2(8)(5.6)$
$A = 22.4 m^2$

8 m
5.6 m

12)

6 yd
6 yd

$A = b(h) \text{ or } lw$
$A = 6 \cdot 6$
$A = 36 yd^2$

13)

10.1 ft
3 ft

$A = l \cdot w$
$A = (10.1)(3)$
$A = 30.3$

14)

7 km
11 km

$A = bh$
$A = (7)(11)$
$A = 77 km^2$

15)

5.5 yd
7.7 yd
10.9 yd
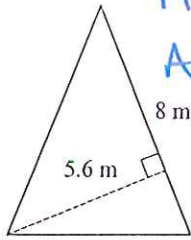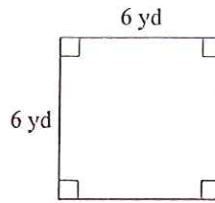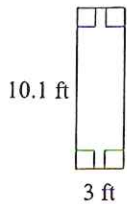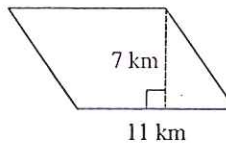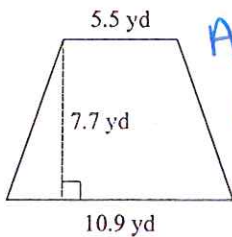
$A = 1/2(B_1 + B_2)h$
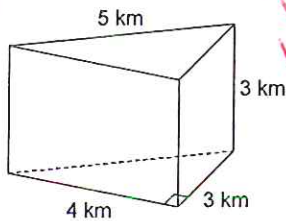$A = 1/2(5.5 + 10.9)(7.7)$
$A = 1/2(16.4)(7.7)$
$A = 63.14 yd^2$

16)

7.2 km
3.2 km
3.2 km
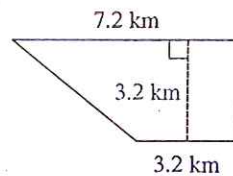
$1/2(7.2 + 3.2)(3.2)$
$1/2(10.4)(3.2)$
$A = 16.64 km^2$

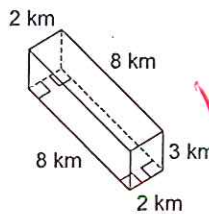**Find the volume of each figure. Round your answers to the nearest thousandth, if necessary.**

17)
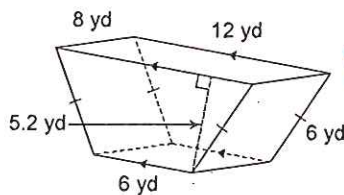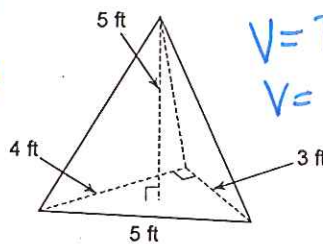
5 km
3 km
4 km
3 km

$V = Bh$
$V = 1/2(3 \cdot 4)(3)$
$1/2(12)(3)$
$(6)(3)$
$V = 18 km^3$

18)

2 km
8 km
8 km
3 km
2 km

$V = l \cdot w \cdot h$
$V = 2(3)(8)$
$V = 6(8)$ $V = 48 km^3$

19)

8 yd
12 yd
5.2 yd
6 yd
6 yd

$V = 1/2(18)(5.2)(8)$
$V = 374.4 yd^3$

20)

5 ft
4 ft
3 ft
5 ft

$V = Bh$
$V = 1/2(3)(4)(5)$
$V = 6(5)$
$V = 30 ft^3$

21)

11 ft
8 ft
5.5 ft

$V = Bh$
$= (1/2 aP)(h)$
$V = (1/2)(5.5)(40)(11)$ $V = 1210 ft^3$

22)

9 cm
7 cm

$V = \pi r^3 h$
$\pi(7^3) 9$
$V = 3087 \pi cm^3$

-2-

23) $V = 1/3 \pi r^3 h$

$V = 1/3 \pi (9^3)(18)$

$V = 4374 \pi \, in^3$

18 in

18 in

24) $V = 4/3 \pi r^3$
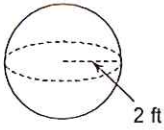
$4/3 \pi (12^3)$

$V = 2304 \pi \, cm^3$

12 cm
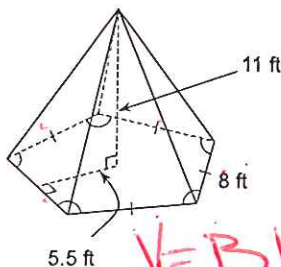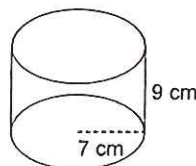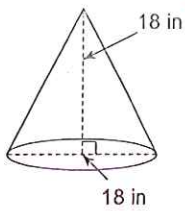
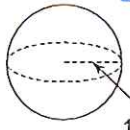**Find the surface area of each figure. Round your answers to the nearest thousandth, if necessary.**

25) $SA = 4\pi r^2$

$4(\pi)(2^2)$
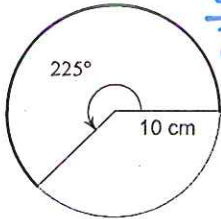
$SA = 16\pi \, ft^2$

2 ft

26) $= 4(\pi)(10.5^2)$

$SA = 441\pi \, cm^2$

10.5 cm

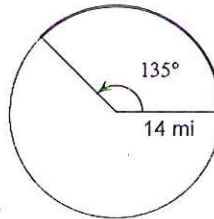**Find the length of each arc. Round your answers to the nearest tenth.**

27) $\frac{225}{360} 2\pi 10$

$12.5\pi \, cm$
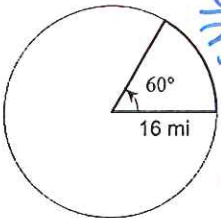
225°

10 cm

28) $\frac{m}{360} 2\pi r$

$\frac{135}{360} 2\pi 14$

$= 10.5\pi \, mi$

135°

14 mi

Find the area of each sector. Round your answers to the nearest tenth.

29) $\frac{60}{360} \pi 16^2$

$= 42.7\pi \, mi^2$

60°

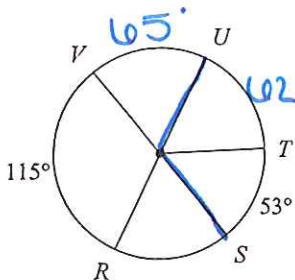16 mi

30) $\frac{m}{360} \pi r^2$

$\frac{150}{360} \pi 7^2$

$= 20.4\pi \, mi^2$

150°

7 mi
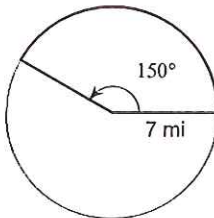
Find the measure of the arc or central angle indicated. Assume that lines which appear to be diameters are actual diameters. Arc = central angle!
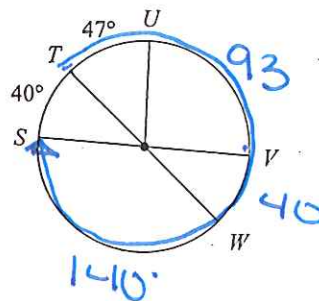
31) $m\overset{\frown}{US}$

65°
V U
62
115°   T
53°
R   S

$62 + 53$

$m\overset{\frown}{US} = 115°$

32) $m\overset{\frown}{TVS}$

47° U
T   93
40°
S   V
40
W
140°

$m\overset{\frown}{TVS} = 320°$

-3-

Find the length of the segment indicated. Round your answer to the nearest tenth if necessary.
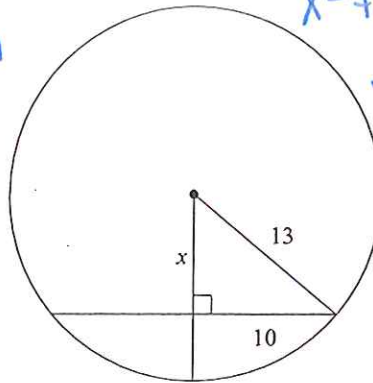
33)
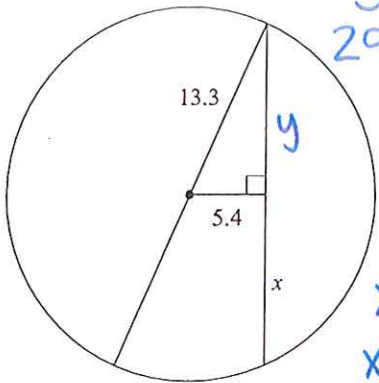
$5.4^2 + y^2 = 13.3^2$

$29.16 + y^2 = 176.89$

$y^2 = 147.73$

$y = 12.15$

13.3

y

5.4

x

$x = y$

$x = 12.15$

34)

$x^2 + 10^2 = 13^2$

$x^2 + 100 = 169$

$x^2 = 69$

$\boxed{x = 8.3}$

13

x

10

Use the information provided to write the equation of each circle. $r^2 = (x-h)^2 + (y-k)^2$

35) Center: $(11, -2)$ $5^2 = (x-11)^2 + (y+2)^2$

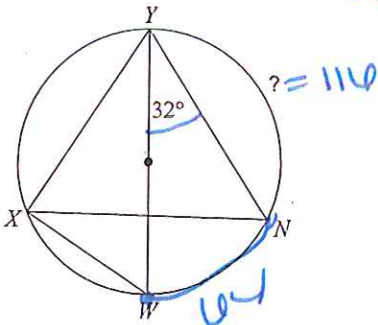Radius: 5 $10 = (x-11)^2 + (y+2)^2$

36) Center: $(2, 10)$ $1^2 = (x-2)^2 + (y-10)^2$

Radius: 1 $1 = (x-2)^2 + (y-10)^2$

Find the measure of the arc or angle indicated.

37)

$180 - 64 = 116$
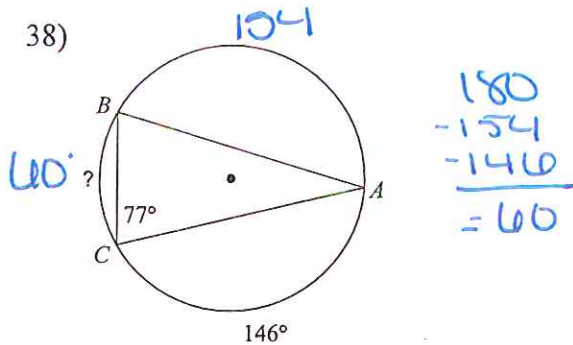
$? = 116$

Y

$32°$

X N

W 64

38)

154

180
-154
-146
$= 60$

B

$60°$ $?$

$77°$

C

A

$146°$

Find the measure of the arc or angle indicated. Assume that lines which appear tangent are tangent.

39)

B $?$ D
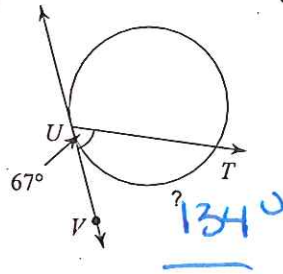
$50°$ C
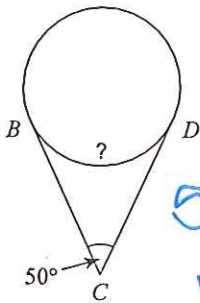
$50 = \frac{1}{2}(180 - x)$

$100 = 180 - x$

$x = 80$?

40)

U

$67°$

V T

$?$

134

41)

$?$

A

$85°$ $57°$

D C B
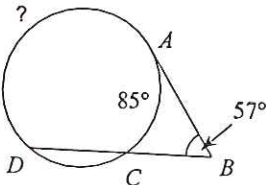
$57 = \frac{1}{2}(x - 85)$

$114 = x - 85$ $x = 199°$

42)

T

$?$

R $120°$

S

$50°$

V U
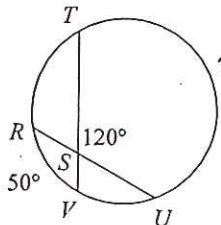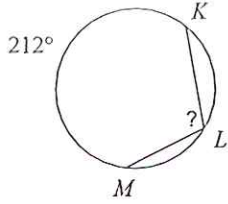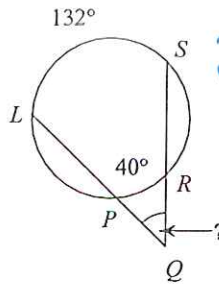
$120 = \frac{1}{2}(x + 50)$

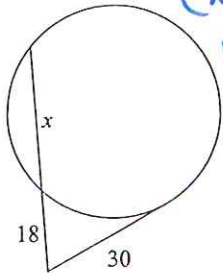$240 = x + 50$

$x = 190°$

43)

$212 \div 2$

$X = 106$

44)

$X = 1/2(132 - 40)$
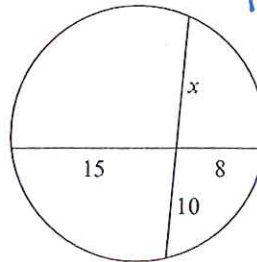
$2x = 92$

$x = 46°$

132°

40°

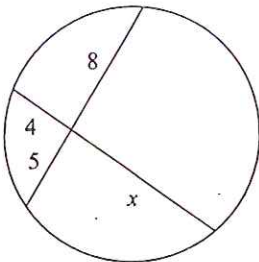**Solve for x. Assume that lines which appear tangent are tangent.**

45)

$(X+18)18 = 30x$

$18x + 324 = 900$

$18x = 576$

$X = 32'$

18   30

46)

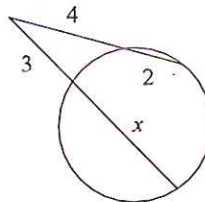$10x = 120$

$X = 12$

15   8

10

47)

$40 = 4x$
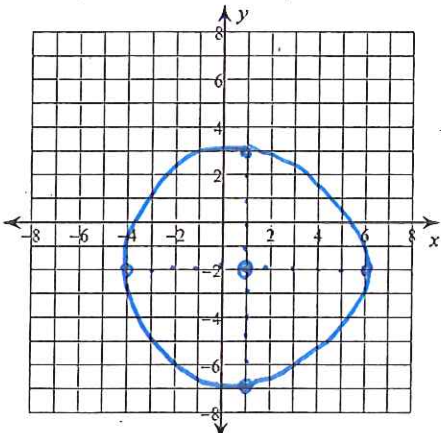
$X = 10$

8

4

5

x

48)

$(6)4 = 3(3+x)$

$24 = 9 + 3y$

$15 = 3x$

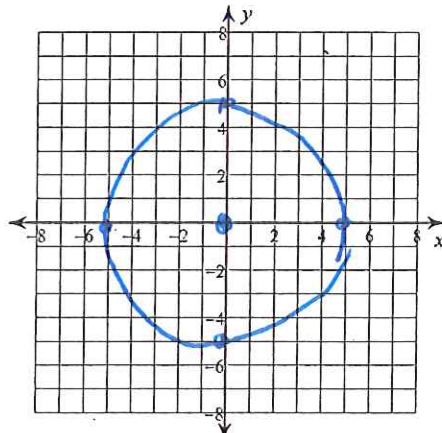$X = 5$

4

3   2

x

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

49) $(x-1)^2 + (y+2)^2 = 25$
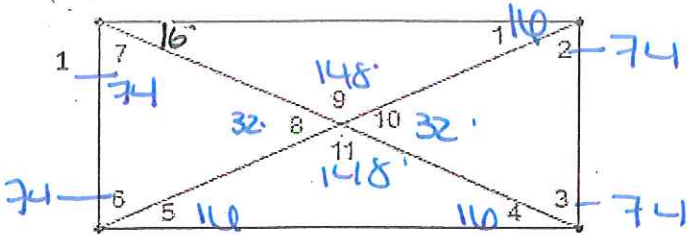

center $(1, -2)$

$r^2 = \sqrt{25}$
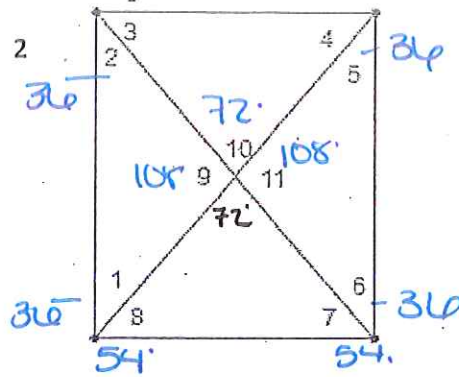
$r = 5$

50) $x^2 + y^2 = 25$

$r = 5$

center $= (0, 0)$

Polygons and Special Parallelograms

1-2 are rectangles. Solve each missing angle.
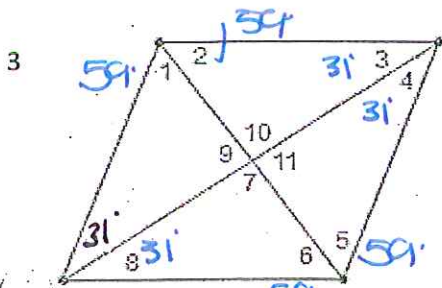
1

16°   110   2 —74
7   148°
74   9
32 8   10 32
11
148
74— 6 5 116   116 4 —74

m<1= 16° m<2= 74° m<3= 74° m<4= 16°
m<5= 16° m<6= 74° m<7= 74° m<8= 32°
m<9= 148° m<10= 32° m<11= 148°

2

36
36   3   4 —36
2   5
72°
36—   10
108° 9   11
108°
72°
1   6 —36
8   7
54°   54°

m<1= 36° m<2= 36° m<3= 54° m<4= 54°
m<5= 36° m<6= 36° m<7= 54° m<8= 54°
m<9= 108° m<10= 72° m<11= 108°

 # 3 is a rhombus. Solve each missing angle.

3

54
59° 2 31° 3
1   4
31°
10
9   11
7
31°
31° 8 5 59°
8   6
59°

m<1= 59 m<2= 59° m<3= 31° m<4= 31°
m<5= 59° m<6= 59° m<7= 90° m<8= 31°
m<9= 90° m<10= 90° m<11= 90°

 # 4 is a square. Solve each missing angle.

4

3   4
2   5
10
9   11
12
1   6
8   7
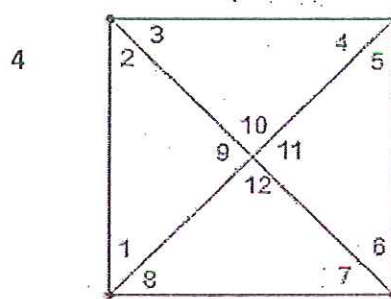
m<1= 45° m<2= 45° m<3= 45° m<4= 45°
m<5= 45° m<6= 45° m<7= 45° m<8= 45°
m<9= 90° m<10= 90° m<11= 90° m<12= 90°

For 5 and 6, answer all of the following questions below.

5
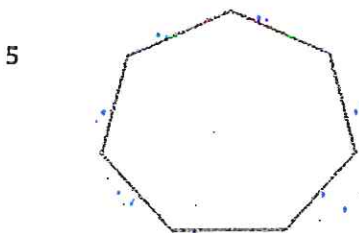
180(n-2)
180(7-2)

Name __heptagon__   Sum= __900__°

One Int Angle __128.6__ One Ext Angle __51.4__
900÷7   360÷7

6

180(10-2)

Name __decagon__   Sum= __1440°__

One Int Angle __144°__ One Ext Angle __36°__

7. Solve for x.
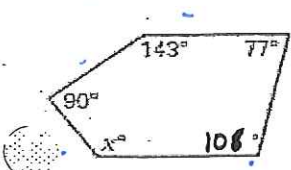
143°   77°
90°
x°   108°

180(5-2)

540

$143+77+108+90+x=540$
$418+x=540$

__X=122°__

8. Solve for x.

67°
96°
x°
80°   59°

__X=58°__
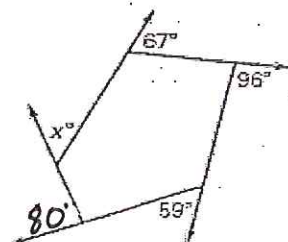
$x+80+59+96+67=360$
$x+302=360$
$x=58°$