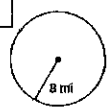
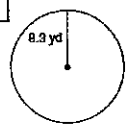
Midterm Review Name: Hirsch

Find the circumference of each circle. Use your calculator's value of π. Round your answer to the nearest tenth.

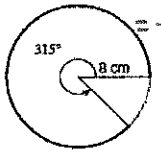
1. 

$C = 2\pi r$
$= 2\pi(8)$
$= 16\pi$ mi
$= 50.265$ mi

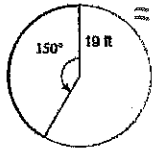
2. 

$C = 2\pi r$
$= 2\pi(8.3)$
$= 52.150$ yd

Find the length of each arc. Do not round.

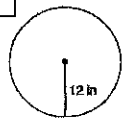
3. 

$= \frac{315}{360} \cdot 2\pi 8$
$= 14\pi$ cm
$= 43.982$ cm

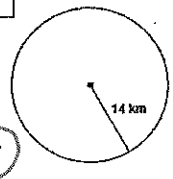
4. 

$= \frac{150}{360} \cdot 2\pi(19)$
$= \frac{95\pi}{6}$ ft
$= 49.742$ ft

Find the area of each. Use your calculator's value of π. Round your answer to the nearest tenth.

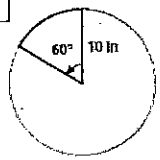
5. 

$A = \pi r^2$
$= \pi(12)^2$
$= 144\pi$ in^2
$= 452.389$ in^2

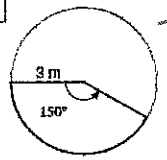
6. 

$A = \pi r^2$
$= \pi(14)^2$
$= 196\pi$ km^2
$= 615.752$ km^2

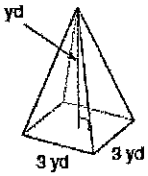
Find the area of each sector. Round your answers to the nearest tenth.

7. 

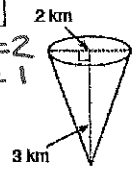
$\frac{60}{360} \cdot \pi(10)^2$
$\frac{50\pi}{3}$ in^2
52.360 in^2

8. 

$\frac{150}{360} \cdot \pi(3)^2$
$\frac{15\pi}{4}$ m^2
11.781 m^2

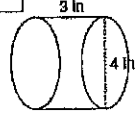
9. 

$V = \frac{1}{3}Bh$
$V = \frac{1}{3}(3)(3)(5)$
$= 15$ yd^3

10. 

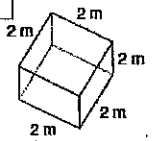
d = 2
r = 1

$V = \frac{1}{3}Bh$
$V = \frac{1}{3}\pi r^2 h$
$= \frac{1}{3}\pi(1)^2(3)$
$= \pi$ km^3
$= 3.142$ km^3

11. 

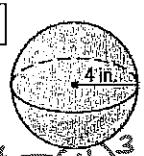
d = 4 in
r = 2 in

$V = Bh$
$V = \pi r^2 h$
$= \pi(2)^2(3)$
$= 12\pi$ in^3
$= 37.699$ in^3

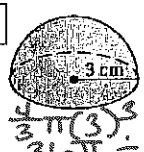
12. 

$V = lwh$
$= 2(2)(2)$
$= 8$ m^3

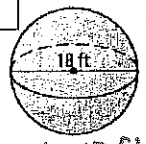
Find the volume to the nearest whole number. → $V = \frac{4}{3}\pi r^3$

13. 

$V = \frac{4}{3}\pi(4)^3$
$= \frac{256\pi}{3}$
$= 268.083$ in^3

14. 

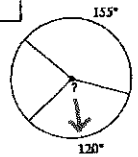
$V = \frac{4}{3}\pi(3)^3$
$= 36\pi \div 2$
$= 18\pi$
$= 56.549$ cm^3

15. 

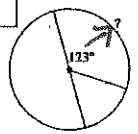
d = 18 ft
r = 9 ft

$V = \frac{4}{3}\pi(9)^3$
$= 972\pi$
$= 3053.628$ ft^3

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

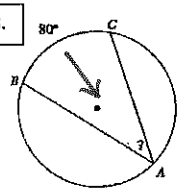
16. 

central / same
120°

17. 

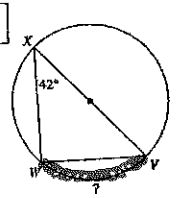
central / same
123°

Find the measure of the arc or angle indicated.

18. 

$\frac{80}{2}$

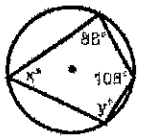
$40°$

19. 

$42(2)$

$84°$

Solve for x and y.

20. 

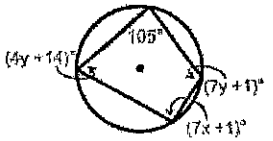
opp angles are supp.

$x = 180 - 108$

$x = 72°$

$y = 180 - 88$

$y = 92°$

21. 

$4y + 14 + 7y + 1 = 180$

$11y + 15 = 180$

$-15 \quad -15$

$\frac{11y}{11} = \frac{165}{11}$

$y = 15$

$7x + 1 + 105 = 180$

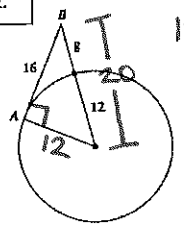
$7x + 106 = 180$

$-106 \quad -106$

$\frac{7x}{7} = \frac{74}{7}$

$x = 10.571$

Determine if line AB is tangent to the circle.

22. 

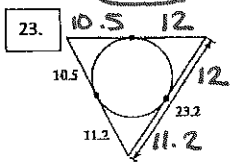
$12^2 + 16^2 = 20^2$

$144 + 256 = 400$

$400 = 400$ ✓

yes, AB is a tangent because AB is ⊥ to a radius at the point of tangency.

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

23. 

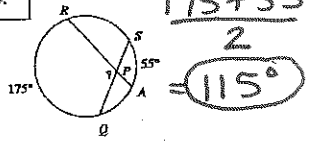
Tangents intersecting at a common exterior point are ≅.

perimeter =

$10.5 + 12 + 12 + 11.2 + 10.5 + 11.2$

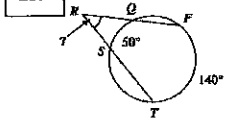
$= 67.4$

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

24. 

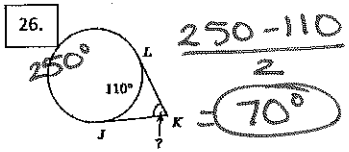
$\frac{175 + 55}{2}$

$= 115°$

25. 

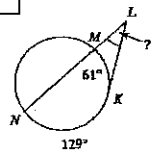
$\frac{140 - 50}{2}$

$= 45°$

26. 

$\frac{250 - 110}{2}$

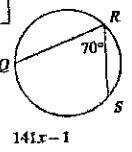
$= 70°$

27. 

$\frac{129 - 61}{2}$

$= 34°$

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

28. 

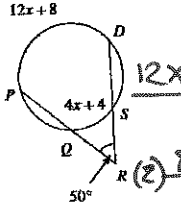
$2(70) = 141x - 1$

$140 = 141x - 1$

$+1 \quad +1$

$\frac{141}{141} = \frac{141x}{141}$

$x = 1$

29. 

$\frac{(12x + 8) - (4x + 4)}{2} = 50$

$\frac{12x + 8 - 4x - 4}{2} = 50$

$\frac{8x + 4}{2} = 50$ (2)

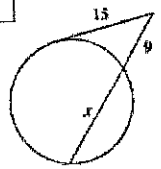
$8x + 4 = 100$

$-4 \quad -4$

$\frac{8x}{8} = \frac{96}{8}$

$x = 12$

Solve for the value of x.

30. 

out(whole) = out(whole)

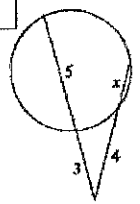
$9(9 + x) = 15(15)$

$81 + 9x = 225$

$-81 \quad -81$

$\frac{9x}{9} = \frac{144}{9}$

$x = 16$

31. 

$3(3 + 5) = 4(4 + x)$

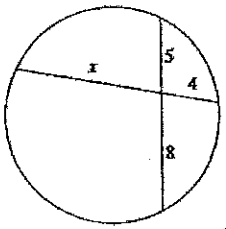
$3(8) = 16 + 4x$

$24 = 16 + 4x$

$-16 \quad -16$

$\frac{8}{4} = \frac{4x}{4}$

$x = 2$

32. 

part · part = part · part

$5(8) = 4(x)$

$\frac{40}{4} = \frac{4x}{4}$

$x = 10$