15 pts

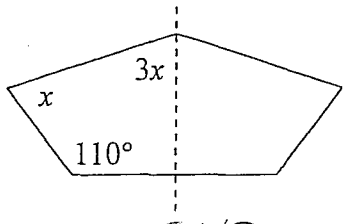
KEY

Geometry Chapter 8 Performance Task SHOW ALL WORK AND BOX YOUR ANSWERS

Names:_____

Date: 3-21+22-17 Per:_____

2 1. The dashed line is a line of symmetry. Calculate x.



$n = 5$

$(5-2)180 = 540$

$2(3x + x + 110) = 540$ 1

$8x + 220 = 540$

$8x = 320$

$\boxed{x = 40}$ 1

3 2. The perimeter of a regular polygon is 63 feet. An exterior angle of the polygon measures 40°. Calculate the length of each side. $= x$

interior angle $= 180 - 40 = 140$

1- any work to find 9 sides

$\frac{(n-2)180}{n} = 140$

$180n - 360 = 140n$

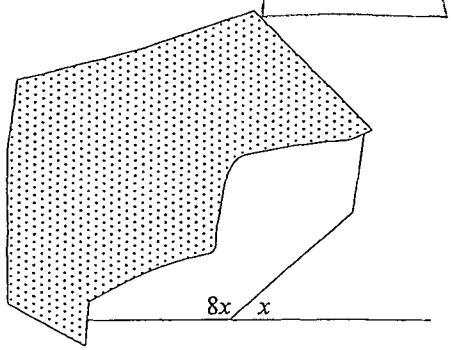
$40n = 360$

$n = 9$ sides 1

$9x = 63$

$\boxed{x = 7}$ 1

3 3. Part of a regular n-gon is covered up so that all you can see is shown at right. What is n?



$8x + x = 180$

$9x = 180$

$x = 20°$ 1

each interior angle $= 160°$

$\frac{(n-2)180}{n} = 160$

$180n - 360 = 160n$

$20n = 360$

any work to find 18 sides - 1

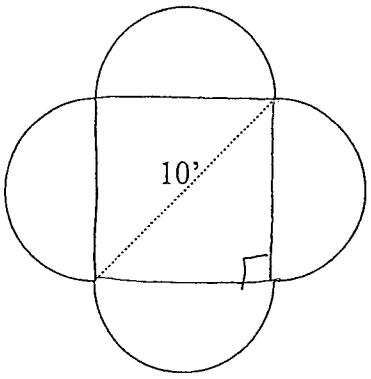
$\boxed{n = 18 \text{ sides}}$ 1

8)

KEY

$\frac{10}{\sqrt{2}}\cdot\frac{\sqrt{2}}{\sqrt{2}}$

3 4. A cloverleaf table is the shape of a square with four semi-circles extended on each side, as shown at right. If the diagonal of the square is 10 feet, find the length of trim that would be needed to decorate the edge of this cloverleaf tabletop.



special 45-45-90 right △

$\frac{10}{\sqrt{2}}\left(\frac{\sqrt{2}}{\sqrt{2}}\right)$

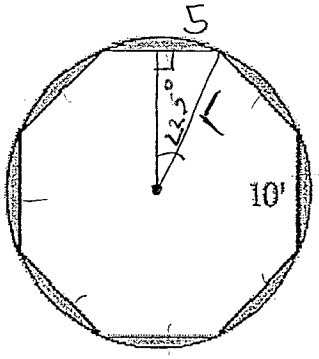
$\frac{10\sqrt{2}}{2} = 5\sqrt{2}$ = diameter of semi circle

4 semi circles = 2 whole circles

$C = \pi D$

$2(5\sqrt{2}\,\pi) = \boxed{10\sqrt{2}\,\pi \text{ feet}}$ $\boxed{\approx 44.43 \text{ feet}}$

4 5. What is the circumference of the circle. The inscribed polygon is regular.



central ∠

$\frac{360}{8} = 45$

$\frac{45}{2} = 22.5°$

$\sin 22.5 = \frac{5}{r}$

$r = \frac{5}{\sin 22.5°} \approx 13.07$

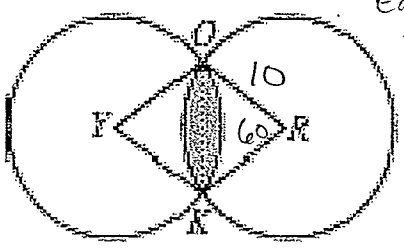
$r \approx 1.9$

$C = 2\pi(1.91)$

$= 3.83\pi$ ft

or ≈ 12.02 ft

3 **BONUS:** In the figure at right, circles Y and R are congruent with a radius of 10 inches. $m\angle ORK = 60°$. Calculate the area of the shaded region.



$\overline{OK} = 10$

52.99 equilateral △

area of sector − area of △

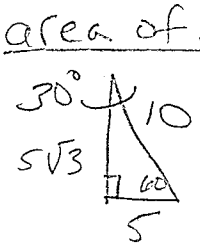
$\frac{60}{360} = \frac{n}{100\pi}$

$360n = 6000\pi$

$n \approx 52.36$

$-\ 43.3$

≈ 9.06



$\frac{(5\sqrt{3})10}{2} = 25\sqrt{3} \approx 43.3$

$\times 2$ $\boxed{\approx 18.12 \text{ in}^2}$

7