

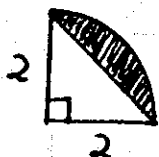
Solutions: Geometry Individual

PCHS '92

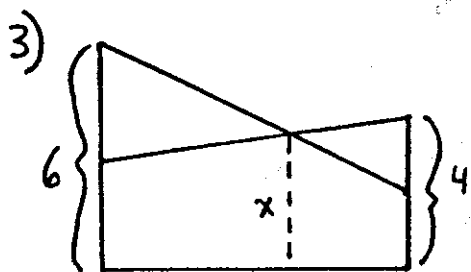
20

1) b

2) area of one segment = $\pi - 2$.
There are 32 of them. $A = 32\pi - 64$



c



$$\frac{1}{x} = \frac{2}{3} \left(\frac{1}{6} + \frac{1}{4} \right)$$

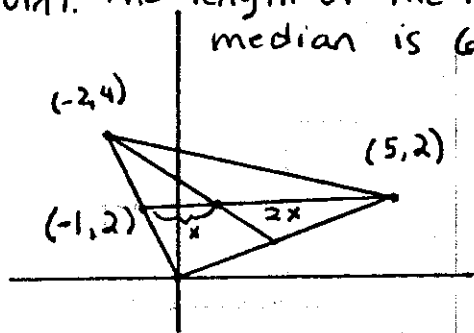
$$\frac{1}{x} = \frac{2}{3} \cdot \frac{5}{12}$$

$$x = \frac{18}{5}$$

c

4) d

5) The medians meet at a trisection point. The length of the horizontal median is 6.

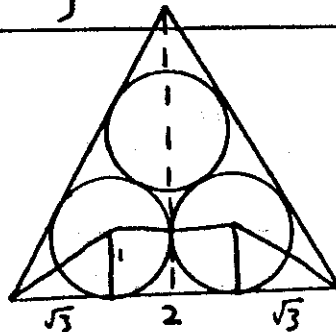


$$x + 2x = 6 \Rightarrow \text{centroid is at } (1, 2)$$

$$x = 2$$

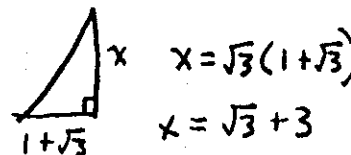
a

6)



$$S = 2 + 2\sqrt{3}$$

$$\frac{1}{2}S = 1 + \sqrt{3}$$

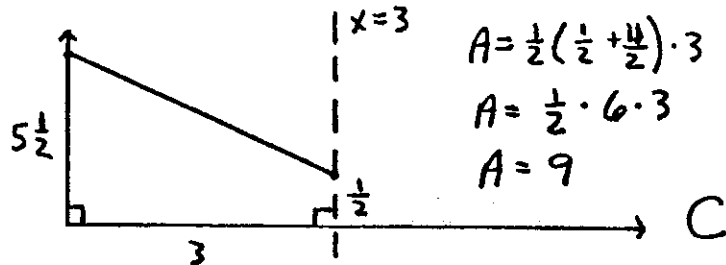


$$x = \sqrt{3}(1 + \sqrt{3})$$

$$x = \sqrt{3} + 3$$

b

7)



$$A = \frac{1}{2} \left(\frac{1}{2} + \frac{1}{2} \right) \cdot 3$$

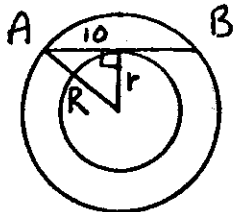
$$A = \frac{1}{2} \cdot 6 \cdot 3$$

$$A = 9$$

8) Area of $\Delta = \frac{ABC}{4R}$. If $ABC = R$

$$\text{then } A = \frac{R}{4R} = \frac{1}{4}, a$$

9)



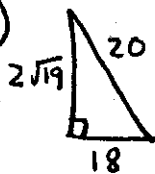
$$R^2 - r^2 = 106$$

Area of annulus is $\pi R^2 - \pi r^2$
 $A = \pi (R^2 - r^2)$
 $A = 100\pi, b$

$$10) n \cdot 2n = 9 \cdot 5 \rightarrow n^2 = 2.25$$

$$2n^2 = 4.5 \checkmark n = 1.5, b$$

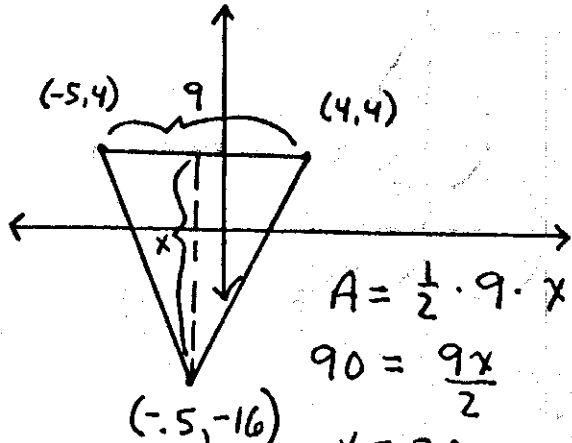
11)



$$A = \frac{1}{2} \cdot 2\sqrt{9} \cdot 18$$

$$A = 18\sqrt{9}, a$$

Geom. Ind. Cont.

12) 

$$A = \frac{1}{2} \cdot 9 \cdot x$$

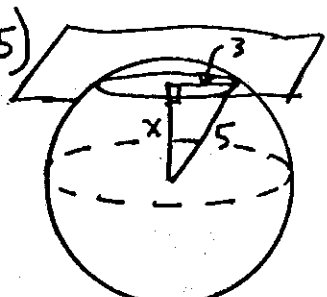
$$90 = \frac{9x}{2}$$

$$x = 20$$

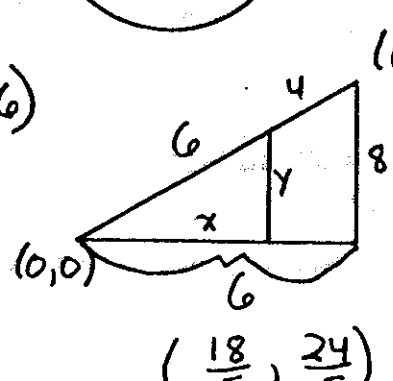
e

13) $19x^2 = 54.91$
 $x^2 = 2.89$
 $x = 1.7$ b

14) apothem = 3 $A = \frac{1}{2} a p$
 side = $2\sqrt{3}$ $A = \frac{1}{2} \cdot 3 \cdot 12\sqrt{3}$
 $A = 18\sqrt{3}$ b

15) 

$$x = 4, \quad d$$

16) 

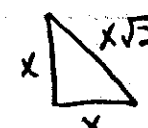
$$(6, 8) \quad \sqrt{6^2 + 8^2} = 10$$

$$\frac{6}{10} = \frac{x}{6}$$

$$\frac{6}{10} = \frac{y}{8}$$

$$\left(\frac{18}{5}, \frac{24}{5}\right) \quad C$$

17) $x + 12 + 24 + 48 + 56 = 180$
 $x = 40, \quad d$

18) 

$$\frac{x^2}{2} = x \quad x^2 = 2x$$

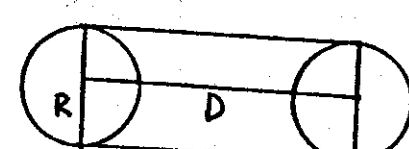
$$x = 2$$

$$P = 4 + 2\sqrt{2}, \quad d$$

19) $\frac{x}{24} = \frac{18}{10} \quad x = 43.2$
 Impossible Δ , e

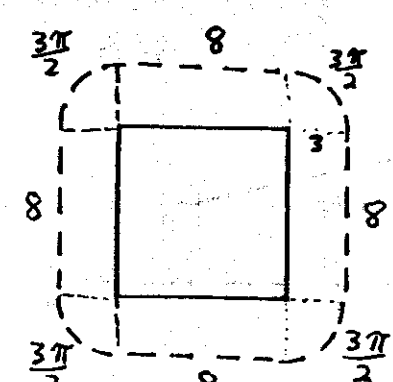
20) $A = rS, \quad p = 2S \quad d$
 $rS = 2S$
 $r = 2, \quad d = 4 \quad C = \pi d \quad C = 4\pi$

21) $16 \cdot x = 8 \cdot 32 \quad AB = 16 + 16$
 $x = 16 \quad AB = 32, \quad d$

22) 

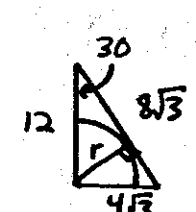
$$L = 2\pi R + 2D$$

$$D = \frac{L - 2\pi R}{2}, \quad a$$

23) 

$$\text{length} = 32 + 6\pi$$

C

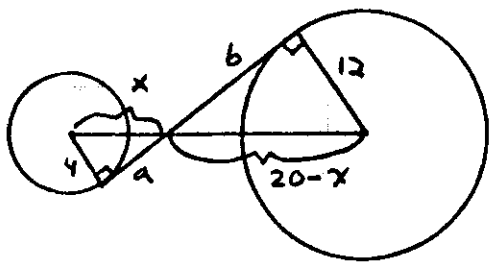
24) 

$$r = \frac{12}{2} = 6$$

C

Geom. Ind. Cont

25)



$$\frac{4}{12} = \frac{x}{20-x}$$

$$12x = 80 - 4x$$

$$x = 5, a = 3, b = 9, a + b = 12$$

a

26) b

$$27) 1^2 + 2^2 + 3^2 + 4^2 = 30 \quad d$$

$$28) \text{ length of diameter} = \sqrt{(12-6)^2 + (14-10)^2} = \sqrt{36+16} = \sqrt{52} = 2\sqrt{13}$$
$$\text{radius} = \frac{2\sqrt{13}}{2} = \sqrt{13}$$

$$C = \left(\frac{6+12}{2}, \frac{10+14}{2} \right) = (9, 12)$$

equation is

$$(x-9)^2 + (y-12)^2 = 13, k$$

$$29) x + y = 6.5 + 8.5$$

$$x + y = 15, c$$

$$30) F + V - E = 2$$

$$F + 12 - 20 = 2$$

$$F = 10, b$$