HW 6.3

April 1, 2015 7:45 PM

BY: ALICE WANG

1a) $x=16$ $y=8$

b) $x=12$ $y=6\sqrt{2}$

c) $x=24\sqrt{2}$ $y=24+24\sqrt{3}$

d) $x=12\sqrt{6}$ $y=12+12\sqrt{3}$

e) $x=17+8\sqrt{3}$ $y=8\sqrt{6}$

f) $x=11\sqrt{2}$ $y=11+11\sqrt{3}$

g) $x=4\sqrt{3}$ $y=2\sqrt{6}$

h) $x=2\sqrt{3}$ $y=6$

i) $x=\sqrt{6}$ $y=1+\sqrt{3}$

j) $x=8.57$ $y=8\sqrt{3}$

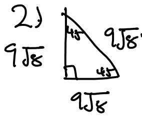
k) $x=10\sqrt{3}$ $\angle BAC=30°$

l) $x=2$ $y=12$

m) $x=12\sqrt{3}$ $y=12$

n) $x=16.19$

o) $x=45+45\sqrt{3}$

2) 

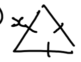
$9\sqrt{8}\times\sqrt{2}$

$9\sqrt{8}+9\sqrt{8}+36$

$\boxed{=86.91}$

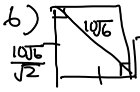
3) $\boxed{\overline{DF}=10\sqrt{3}}$

4) $\boxed{\overline{AC}=20\sqrt{3}}$

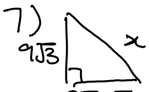
5) 

$3x=\dfrac{\dfrac{x\times x\sqrt{2}}{2}}{2}$

$\boxed{x=6\sqrt{2}}$

6) 

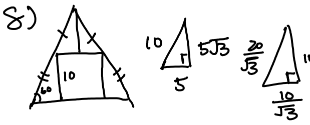
$\boxed{P=40\sqrt{3}}$

7) 

$9\sqrt{3}\times\sqrt{3}=27$

$x=\sqrt{972}$

$\boxed{P=73.77}$

8) 

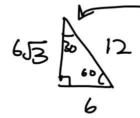
$10+\dfrac{20}{\sqrt{3}}$

$\boxed{=21.55\text{cm}}$

9) 

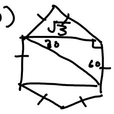
$6x=180°$

$x=30°$ Therefore:



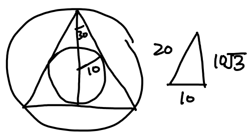
$12+6+6\sqrt{3}$

$\boxed{=28.39}$

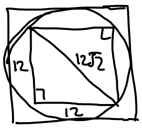
10) 

7 $\boxed{\begin{aligned}\overline{ZV}&=7\sqrt{3}\\ \overline{ZW}&=14\end{aligned}}$

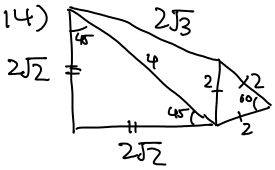
11) $\overline{AX}=10$

12) 

$\boxed{R=20}$

13) 

$\boxed{\text{side length} = 12\sqrt{2}}$

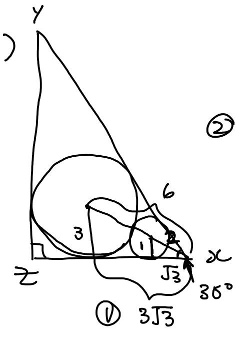
14) 

$2\sqrt{2}+2\sqrt{2}+2\sqrt{3}+4$

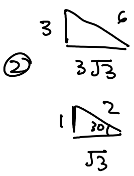
$\boxed{=13.12}$

15) ?

16) see 6.2 #11

15) 

$\sqrt{3}$



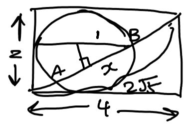
$\angle yxz=60°$

$\triangle yxz$ is a special triangle

since $\overline{zx}=3+3\sqrt{3}$,

$\boxed{\overline{yz}=9+3\sqrt{3}}$

Challenge:



$\boxed{\dfrac{4\sqrt{5}}{5}}$

$\dfrac{2\sqrt{5}}{1}=\dfrac{4}{x}$

$x=\dfrac{4}{2\sqrt{5}}=\dfrac{4}{x}$

$x=\dfrac{4}{2\sqrt{5}}=\dfrac{2\sqrt{5}}{5}$

$AB=\dfrac{2(2\sqrt{5})}{5}=\dfrac{4\sqrt{5}}{5}$

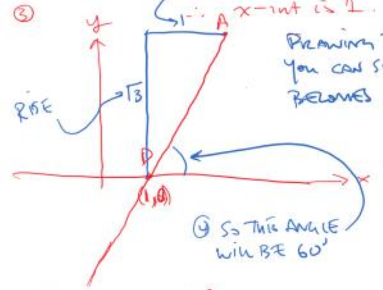
15) When given the line equation $y=\sqrt{3}(x-1)$, expand it and you get $y=\sqrt{3}x-\sqrt{3}$

① slope $= \frac{\sqrt{3}}{1}$ ← Rise ← Run

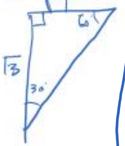
② x-intercept: $y=\sqrt{3}(x-1)$

$0=\sqrt{3}(1-1)$ ∴ x-int is 1.

③

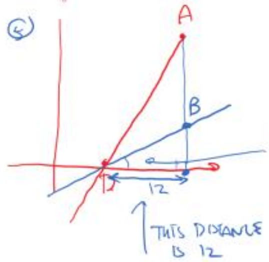


Drawing the diagram, you can see that it becomes a special triangle!



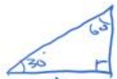
④ So this angle will be 60°

⑤



This distance is 12

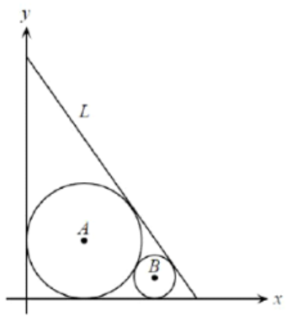
This angle is 30° b/c it bisects 60°



$\frac{12}{\sqrt{3}}$ or $4\sqrt{3}$

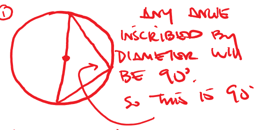
⑥ ∴ The coordinates of point B will be $(13, 4\sqrt{3})$

#15.



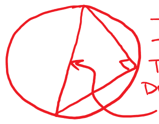
#1k) To understand 1k, there are several circles that you need to know first.

①



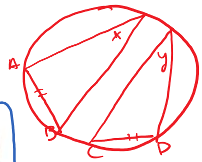
Any angle inscribed by diameter will be 90°. So this is 90°

② Vice versa, if the angle is 90°, the line must be a diameter.

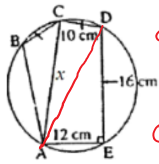


This has to be the diameter!

③ Any angle inscribed by equal chords are equal.



If $\overline{AB}=\overline{CD}$ then $\angle x=\angle y$

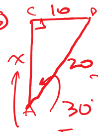


① Draw a line from A to D

② $\angle E = 90$ → AD is a diameter

12, 16, AD. ∴ AD = 20.
3, 4, 5.

③



← This must be a special triangle!

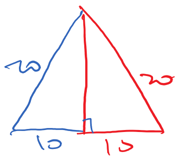
$x=10\sqrt{3}$

④ $\angle BAC = \angle CAD$. They inscribe equal chords.

ie: $BC = CD \rightarrow \angle BAC = \angle CAD$.

∴ $\angle BAC = 30°$

Whenever the hypotenuse is double the base in a right triangle it will be a special triangle, b/c if you double it, it becomes an equilateral triangle



⇒