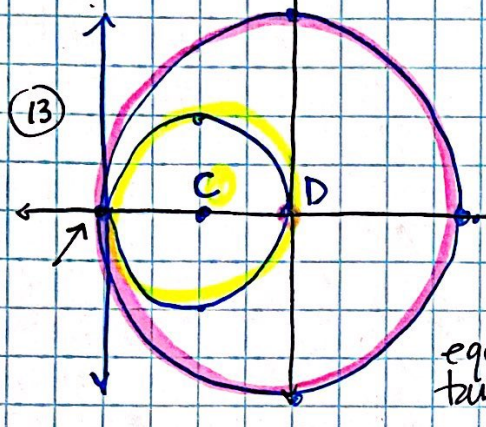
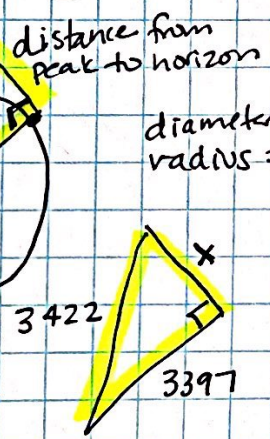
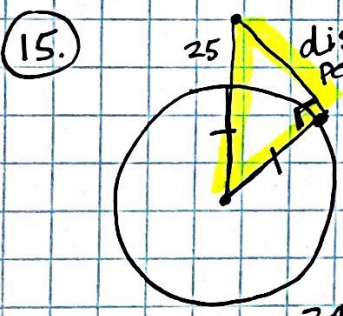


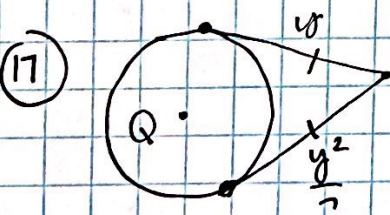
⊙P  
 tangent:  $l$   
 secant:  $\overleftrightarrow{VW}$   
 diameter:  $\overline{VW}$   
 radii:  $\overline{PV}, \overline{PW}$   
 chords:  $\overline{SR}, \overline{VW}$



⊙C radius = 2 units  
 ⊙D radius = 4 units  
 point of tangency is at  $(-4, 0)$   
 equation of vertical tangent line  $x = -4$

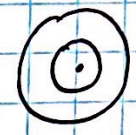


diameter = 6794 km  
 radius = 3397 km  
 $x^2 + 3397^2 = 3422^2$   
 $x^2 = 170475$   
 $x \approx 412.886$   
**413 km**



$y = \frac{y^2}{7}$   
 $7y = y^2$   
 $0 = y^2 - 7y$   
 $0 = y(y-7)$   
 $y = 0$  or  $y = 7$

18. Sometimes



Concentric circles have same centers but different diameters

19. Never



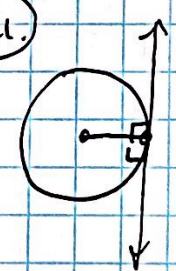
a tangent, by definition, intersects at exactly one point.  
 not a tangent line

20. Never



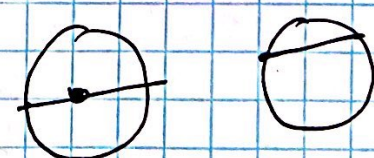
if they had the same center they would be  $\cong$  or concentric, not tangent

21.



Always, by Theorem 12-1-1

22. Sometimes



if the chord goes through the center



27. at point of tangency, radius  $\perp$

In a Quad, all  $\angle$ s add to 360

$$x + 3x + 2(90) = 360$$

$$4x = 180$$

$$x = 45$$

$m\angle P = 45^\circ$

38.  $3^2 + 10^2 = x^2$   
 $109 = x^2$   
 $\sqrt{109} \approx 10.44$

C. 10.4 cm

31. let  $ST = x$

$$13 - 5 = 8 = ST$$

39. tangent to  $\odot$

G.  $y = -4$

32.  $x = 23$   
 $23 + x - 5 = 23 + y$   
 $23 + 23 - 5 = 23 + y$   
 $4 = 23 + y$   
 $y = 18$

or  $y = x - 5 = 23 - 5$

40.  $\odot A$  radius 5  
 $A = \pi r^2 = 25\pi$

$\odot B$  radius 6  
 $A = \pi r^2 = 36\pi$

33.  $ky - 2 = 30 - 2y$   
 $8y = 32$   
 $y = 4$

so  $JL = 30 - 2(4) = 22$

ratio of area  $\odot A$  to  $\odot B$

$$\frac{25\pi}{36\pi} = \frac{25}{36} B$$