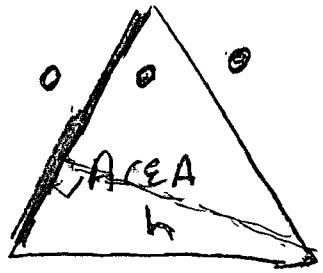
Geometry TUES. 4-9-13

CLASS NOTES

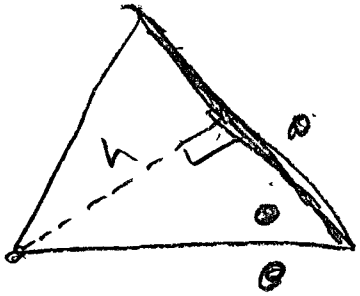
Heron's Formula

SSS ⇒ $A = \sqrt{s(s-a)(s-b)(s-c)}$



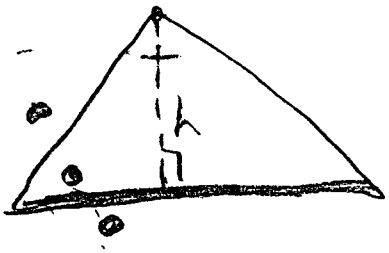
$A = \frac{1}{2}bh$

• SAS = $\frac{1}{2}ab\sin C$ = Area



$A = \frac{1}{2}bh$

• SAS = $\frac{1}{2}ac\sin B$ = Area



$A = \frac{1}{2}bh$

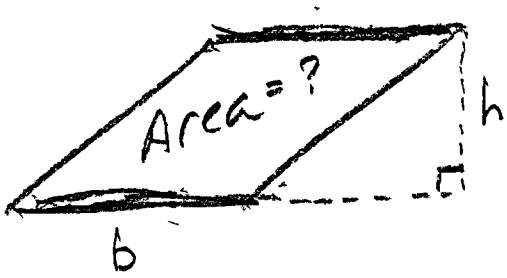
• SAS ⇒ $\frac{1}{2}bc\sin A$ = Area

Area of Triangle

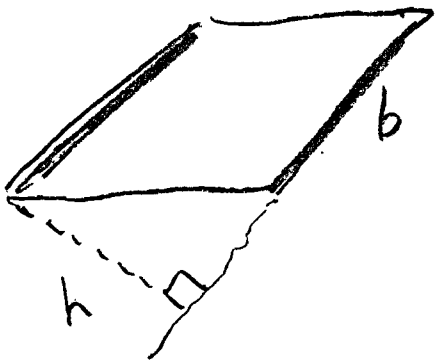
(ex) Special case

$A_\Delta = \frac{1}{2}aP$

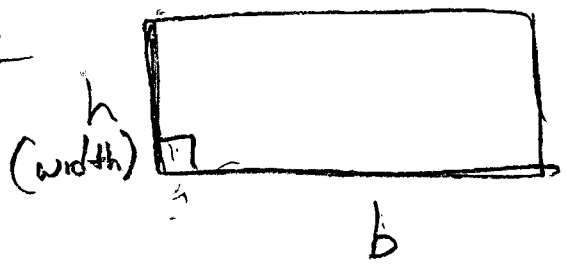
↑ apothem ↑ Perimeter



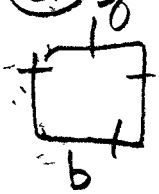
$A = bh$



(Ex) SPECIAL



(Ex) SQUARE



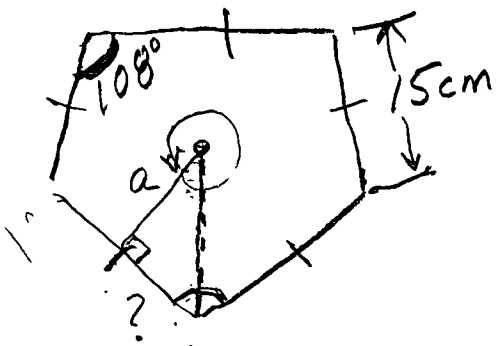
Area of Parallelogram

Regular Polygons

All sides, all angles congruent

KNOW KNOW

$A = \frac{1}{2} a P$



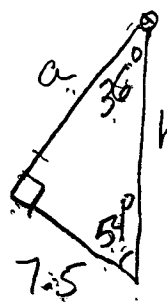
Pentagon

$\frac{540}{5} = 108$

$A = \frac{1}{2} a(75)$

$A = \frac{1}{2}(10.3)75 = 386.25$

$A = 386.3$ units^2



~~SOH~~ ~~CAH~~ TOA

$a \tan 36° = \frac{7.5}{a} \cdot a$

$\frac{a(\tan 36)}{\tan 36} = \frac{7.5}{\tan 36}$

$7.5 \tan 54 = \frac{a}{7.5} \cdot 7.5$

$a = \frac{7.5}{(.7265)} = 10.323$

$a = 10.3$

$7.5(1.3764) = a$

$10.323 = a$

$10.3 = a$

Area of Regular Polygons

(4)

$A_{reg.\ poly} = \frac{1}{2} a P$

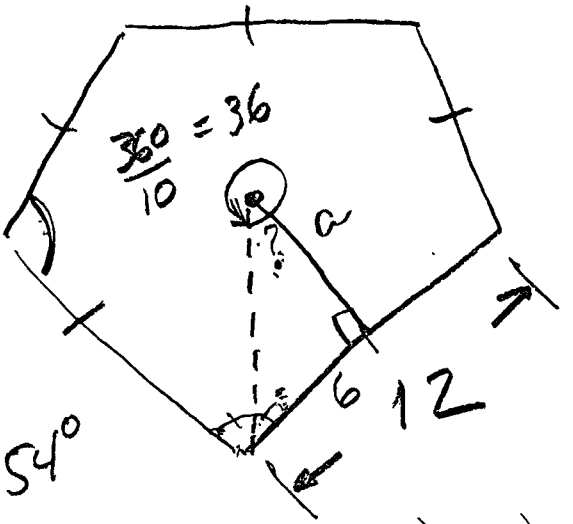
$\frac{1}{2}$? 60

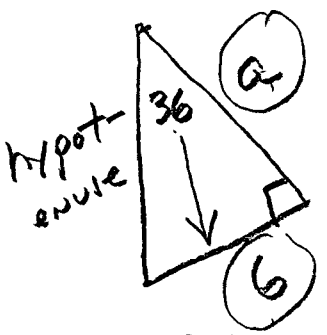
8.3

$\frac{360}{10} = 36$

$\frac{540}{5} = 108$

$\frac{108}{2} = 54°$





~~SOHCAHTOA~~

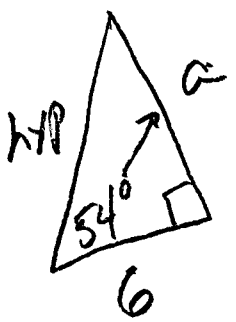
$a \tan 36° = \frac{6}{a} \cdot a$

$\frac{a \tan 36}{\tan 36} = \frac{6}{\tan 36}$

$a = \frac{6}{.7265} = 8.259$

$a = 8.3$

$A = 249 \text{ units}^2$

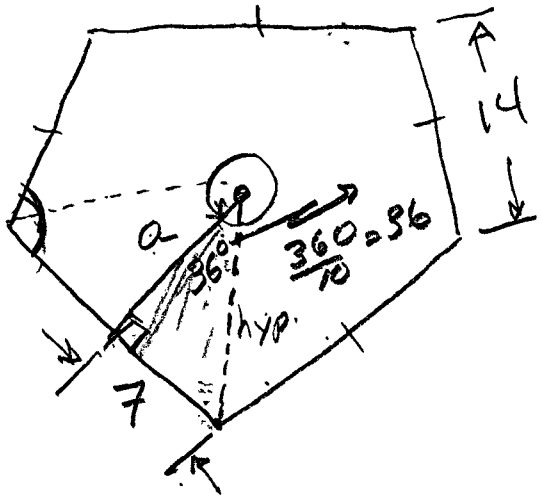


$6 \tan 54 = \frac{a}{6} \cdot 6$

$6(1.3764) = a$

$8.3 = 8.258 = a$

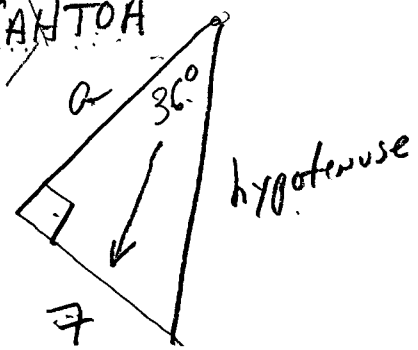
Ex



$70 = P$

$A = \frac{1}{2} a P$

SOHCAHTOA



$a \tan 36^\circ = \frac{7}{a} \cdot a$

$\frac{a \tan 36}{\tan 36} = \frac{7}{\tan 36}$

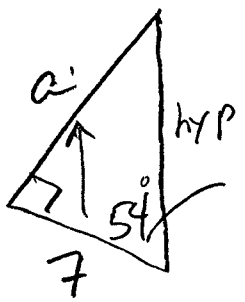
$a = \frac{7}{(.7265)}$

$a = 9.635$

$a = 9.6$

$A = \frac{1}{2}(9.6)70$

$A = 336 \text{ units}^2$



$\frac{540}{5} = 108^\circ$

$\tan 54^\circ = \frac{a}{7} \therefore 7(\tan 54) = a$

$7(1.3764) = a$

$9.635 = a$

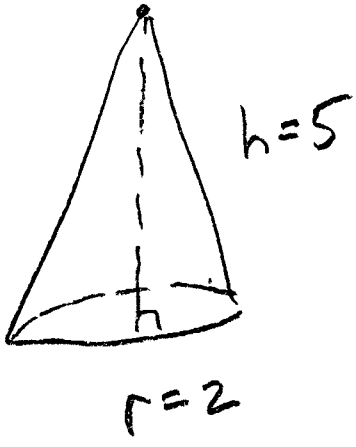
$9.6 = a$

Quiz 3 Review ① $V = ?$

- Volume of Cone

$$V = \frac{1}{3} B h$$

$$B = \pi r^2$$



$$= \frac{1}{3}(\pi(2)^2)5$$

$$= \frac{4}{3} \cdot \frac{5}{1} \cdot \pi$$

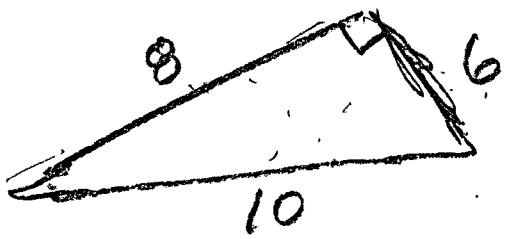
$$= \frac{20}{3}\pi$$

$$= 6.7\pi \text{ yd}^3$$

(3) $V = ?$ triangular pyramid

$V = \frac{1}{3} B h$ $\quad h = 12$

B = Area

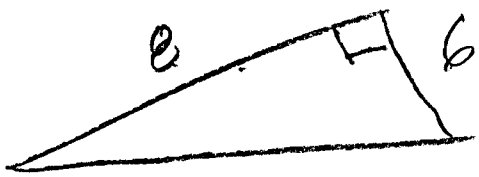


$A_\Delta = \frac{1}{2}(6)(8)$

$= 24$

$$V = \frac{1}{3}(24)\,12 = 96\ \text{km}^3$$

(6) $V = ?$ $\quad h = 10$ yd



$V = \frac{1}{3}(24)\,10$

$$V = 80\ \text{yd}^3$$

Quiz 3 Review #8 Pentagonal Prism

$V = Bh$ (B = area)

$A = \frac{1}{2}aP$

$h = 12$ ft

Side $= 9$ ft

$P = 45$ ft

$a = 6.2$ ft

$V = \left(\frac{1}{2}(6.2)45\right)12$

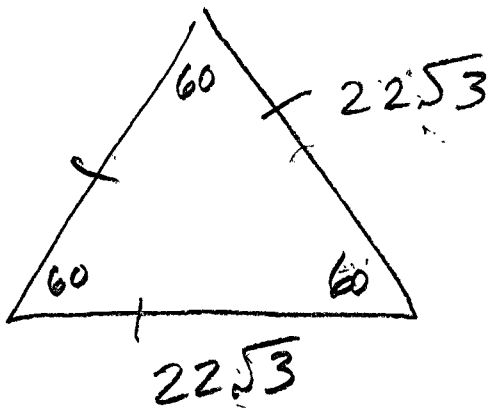
B

$V = 6(6.2)45$

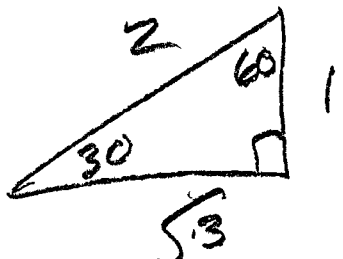
$V = 270(6.2)$

$\boxed{V = 1674\ \text{ft}^3}$

(10)



$A = ?$



SAS

$$A = \frac{1}{2}\left(22\sqrt{3}\right)\left(22\sqrt{3}\right)\sin 60 = \frac{\sqrt{3}}{2}$$

$$= (121)(3)\sqrt{3}$$

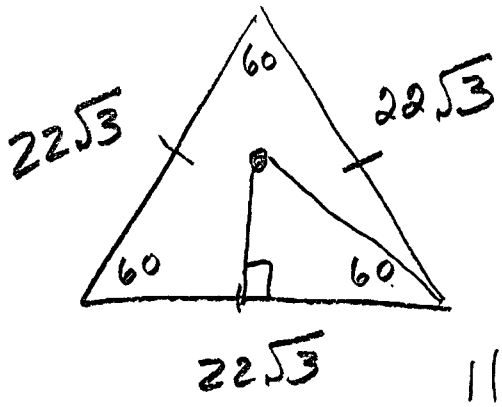
$$= 363\sqrt{3} \approx 628.73$$

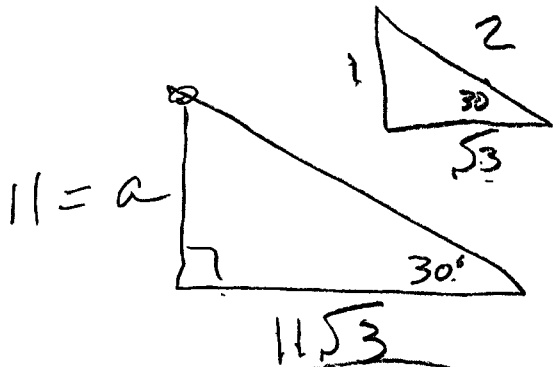
$A = 628.7$ UNITS^2

(ex) Regular Polygon $\Rightarrow A = ?$

$A = \frac{1}{2} a P$

$66\sqrt{3}$





$\tan 30° = \frac{a}{11\sqrt{3}}$

or

$\frac{1}{\sqrt{3}} = \frac{a}{11\sqrt{3}}$

33

$A = \frac{1}{2}(11)\,66\sqrt{3}$

3

$A = 363\sqrt{3} = 628.73$

$A = 628.7 \text{ units}^2$