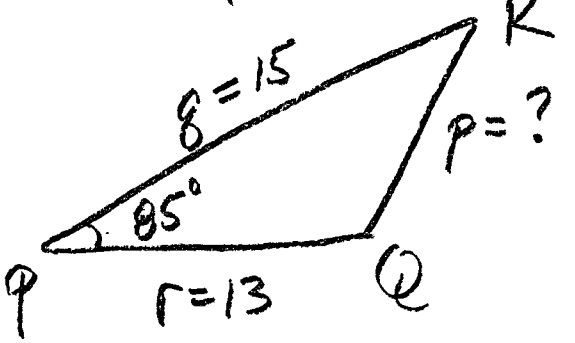
Algebra 2 Monday 1-7-13 Class Notes

Worksheet Practice

① $\triangle PQR$ $q = 15$ $r = 13$ $m\angle P = 85^\circ$

Find p



SAS ⇒ LOC

$p^2 = 13^2 + 15^2 - 2(13)15)\cos 85^\circ$

$p^2 = 169 + 225 - 390(.08716)$

$p^2 = 394 - 33.9907$

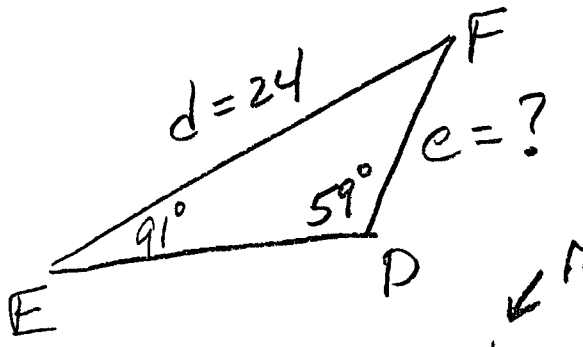
$p^2 = 360.009$

$p = 18.974$

$p = 19.0$ ✓

(7) $\triangle EFD$ $m\angle E = 91°$ $m\angle D = 59°$

Find e $d = 24$



AAS = LOS

ref $\angle = 89°$

$$\frac{\sin 59}{24} = \frac{\sin 91}{e}$$

$$e \sin 59 = 24 \sin 89$$

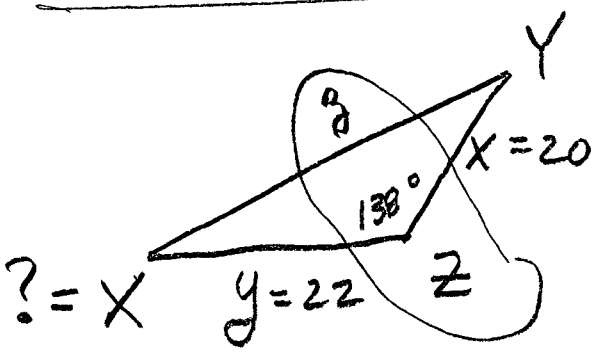
$$e = \frac{24 \sin 89}{\sin 59} = \frac{24(.9998)}{(.8572)}$$

$e = 27.993$

$e = 28.0$

(13) $\triangle ZXY$ $X = 20$ $m\angle Z = 138^\circ$

Find $m\angle X = ?$ $y = 22$



cos is (−)

$138^\circ \Rightarrow$ ref $\angle = 42^\circ$

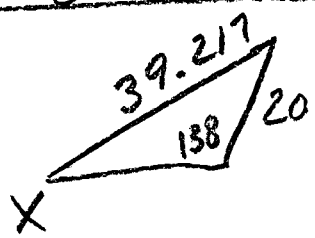
22
×22
44
44
484

$z^2 = 20^2 + 22^2 - 2(20)(22)(-\cos 42)$

$z^2 = 400 + 484 + 880(.7431)$

$z^2 = 884 + 653.967$

$z^2 = 1537.97 \quad \therefore z = 39.217$



Ref

$\frac{\sin 42}{39.217} = \frac{\sin X}{20}$

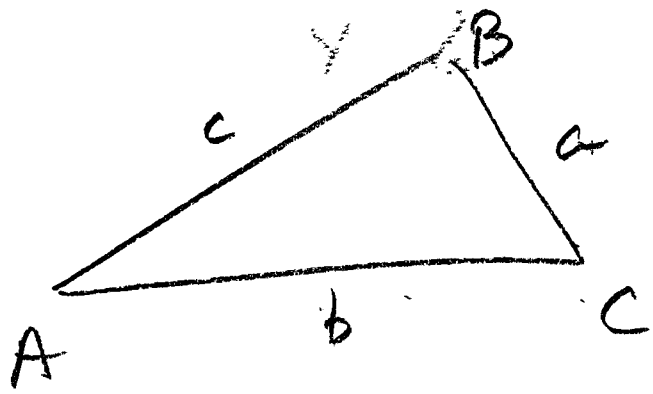
$\sin X = \frac{20(.6691)}{39.217}$

$\sin X = .3412$

$X = \sin^{-1}(.3412)$

$X = 19.95$

$\boxed{X = 20^\circ}$



$A = \frac{1}{2} bc \sin A$

$A = \frac{1}{2} ac \sin B$

$A = \frac{1}{2} ab \sin C$

SAS

$S = \frac{1}{2}(a+b+c)$

$A = \sqrt{S(S-a)(S-b)(S-c)}$

Heron's Formula

SSS

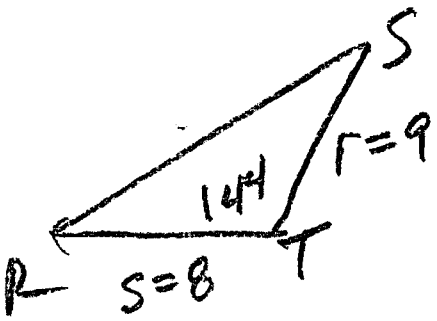
90° $\triangle$

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

AREA FORMULAS OF $\triangle$

(31) $\triangle TRS$ $s=8$ $r=9$ Area = ?

$m\angle T = 144°$



144°; ref $\angle = 36°$

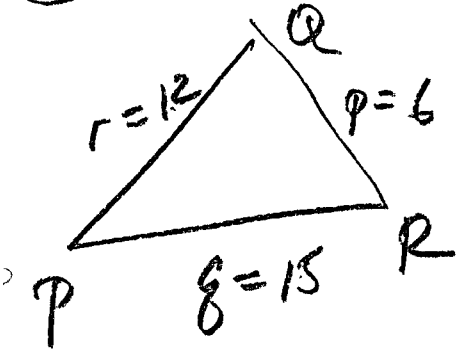
$$A = \frac{1}{2}(8)(9)\sin 36$$

$$= 36(.5878)$$

$$= 21.160$$

$A = 21.2 \text{ units}^2$

(42) $\triangle PQR$ $q = 15$ $p = 6$ $r = 12$ Area = ?



$$S = \frac{1}{2}(33) = \frac{33}{2}$$

$$A = \sqrt{\frac{33}{2}\left(\frac{33}{2} - \frac{30}{2}\right)\left(\frac{33}{2} - \frac{24}{2}\right)\left(\frac{33}{2} - \frac{12}{2}\right)}$$

$$= \sqrt{\frac{33}{2}\left(\frac{3}{2}\right)\left(\frac{9}{2}\right)\left(\frac{21}{2}\right)}$$

$$= \frac{\sqrt{18711}}{4} = \frac{136.788}{4}$$

$$A = 34.19$$

$$A = 34.2 \text{ units}^2$$