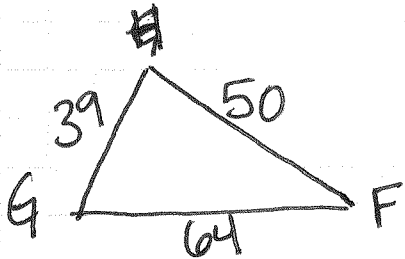


298 32, 34-40, 47, 48, 65, 87-88

32.  $\triangle FGH$

$f=39$   $g=50$   $h=64$



Big  $\rightarrow 64^2 = 50^2 + 39^2 - 2(50)(39)\cos H$

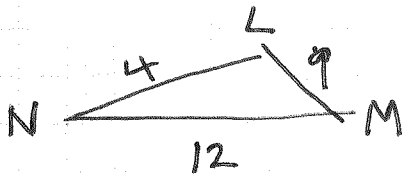
$$\frac{75}{-3900} = \frac{-3900}{-3900} \cos H$$

$$\cos^{-1}\left(\frac{75}{-3900}\right) = H = 91.102^\circ$$

$$\frac{\sin F}{39} = \frac{\sin 91.102}{64}$$

$$F = \sin^{-1}\left(\frac{39 \sin 91.102}{64}\right) = 37.536^\circ \quad \left| \begin{array}{l} G = 180 - (91.102 + 37.536) \\ = 51.362^\circ \end{array} \right.$$

34  $\triangle LMN$   $l=12$   $m=4$   $n=9$



Big  $12^2 = 4^2 + 9^2 - 2(4)(9)\cos L$

$$47 = -72 \cos L$$

$$L = \cos^{-1}\left(\frac{-47}{72}\right)$$

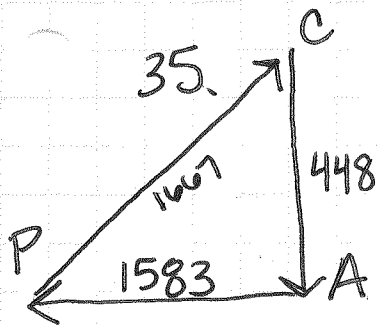
$$\frac{\sin M}{4} = \frac{\sin 130.751}{12}$$

$$M = \sin^{-1}\left(\frac{4 \sin 130.751}{12}\right) \quad L = 130.751^\circ$$

$$M = 14.626^\circ$$

$$N = 180 - 145.317$$

$$N = 34.623^\circ$$



$$1667^2 = 448^2 + 1583^2 - 2(448)(1583)\cos A$$

$$\frac{72296}{-1418368} = \frac{-1418368 \cos A}{-1418368}$$

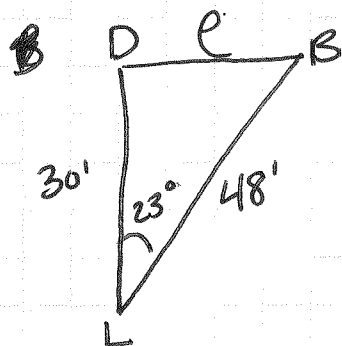
$$A = \cos^{-1}\left(\frac{72296}{1418368}\right) = 87.078^\circ$$

$$\frac{\sin P}{448} = \frac{\sin 87.078^\circ}{1667}$$

$$\sin^{-1}\left(\frac{448 \sin 87.078^\circ}{1667}\right) = P = 15.569^\circ$$

$$\angle C = 180 - 102.647 = 77.353^\circ$$

36



$$e^2 = 30^2 + 48^2 - 2(30)(48)\cos 23$$

$$e^2 = 552.946$$

$$e = 23.515 \text{ feet}$$

37.  $x=9$   $y=11$   $z=16$   $s = \frac{1}{2}(9+11+16) = 18$

$$A = \sqrt{18(18-9)(18-11)(18-16)} = \sqrt{18(9)(7)(2)} = 47.624 \text{ cm}^2$$

38.  $x=29$   $y=25$   $z=27$   $s = \frac{1}{2}(29+25+27) = 40.5$

$$\text{Area} = \sqrt{40.5(40.5-29)(40.5-25)(40.5-27)} = 312.183 \text{ in}^2$$

39.  $x=58$   $y=40$   $z=63$   $s = \frac{1}{2}(58+40+63) = 80.5$

$$\text{Area} = \sqrt{80.5(80.5-58)(80.5-40)(80.5-63)} = 1133.015 \text{ ft}^2$$

$$40 \quad x=37 \quad y=10, \quad z=34 \quad s = \frac{1}{2}(37+10+34) = 40.5$$

$$\text{Area} = \sqrt{(40.5)(40.5-37)(40.5-10)(40.5-34)} = \boxed{167.636 \text{ mm}^2}$$

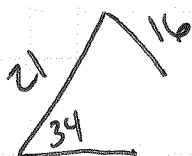
$$47 \quad \triangle RST \quad R=35^\circ \quad s=42 \quad t=26$$

$$A = \frac{1}{2}(42)(26) \sin 35^\circ = \boxed{313.173 \text{ ft}^2}$$

$$48 \quad \triangle XYZ \quad Y=124^\circ \quad x=16 \quad z=18$$

$$A = \frac{1}{2}(16)(18) \sin 124^\circ = \boxed{119.381 \text{ m}^2}$$

$$65. \quad \angle A = 34^\circ \quad a=16 \quad b=21 \quad \text{Acute } \triangle$$

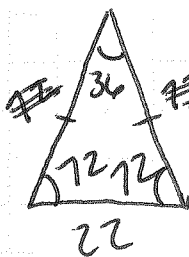


$$16 < 21$$

$$h = 21 \sin 34 = 11.74 \quad 16 > h$$

**2 solutions  
Both wrong**

87. perimeter



$$180 - 36 = 144$$

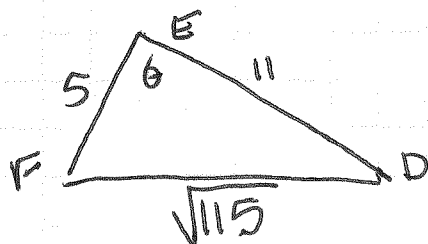
$$\frac{144}{2} = 72^\circ$$

$$\frac{s}{\sin 72} = \frac{22}{\sin 36}$$

$$s = \frac{22 \sin 72}{\sin 36} = 35.597$$

$$P = 22 + 2(35.597) = 93.193 \quad \boxed{E}$$

88.  $\triangle DEF$



$$(\sqrt{115})^2 = 5^2 + 11^2 - 2(5)(11)(\cos \theta)$$

$$-31 = -110 \cos \theta$$

$$\cos^{-1}\left(\frac{31}{110}\right) = \theta = 73.631 \quad \boxed{G}$$