① $a^2 = 23^2 + 13^2 - 2(23)(12)\cos 120$

$\sqrt{a^2} = \sqrt{997}$

$\boxed{a = 31.6}$

$23^2 = 31.6^2 + 13^2 - 2(31.6)(13)\cos C$

$529 = 1167.56 - 821.6\cos C$

$-638.56 = -821.6\cos C$

$0.7772 = \cos C$

$\boxed{\cos^{-1} C = 39.0°}$

$\angle B = 180 - 39.0 - 120 = \boxed{21°}$

② $23^2 = 21^2 + 17^2 - 2(21)(17)\cos B$

$529 = 730 - 714\cos B$

$-201 = -714\cos B$

$0.2815 = \cos B$

$\boxed{\cos^{-1} B = 73.6°}$

$21^2 = 23^2 + 17^2 - 2(23)(17)\cos A$

$441 = 818 - 782\cos A$

$-377 = -782\cos A$

$0.4821 = \cos A$

$\boxed{\cos^{-1} A = 61.2°}$

$\angle C = 180 - 61.2 - 73.6 = \boxed{45.2°}$

③ $c = 26, b = 24, a = 18$

$26^2 = 24^2 + 18^2 - 2(24)(18)\cos C$

$676 = 900 - 864\cos C$

$-224 = -864\cos C$

$0.2593 = \cos C$

$\boxed{\cos^{-1} C = 75.0°}$

$24^2 = 26^2 + 18^2 - 2(26)(18)\cos B$

$576 = 1000 - 936\cos B$

$-424 = -936\cos B$

$0.4530 = \cos B$

$\boxed{\cos^{-1} B = 63.1°}$

$\angle A = 180 - 63.1 - 75.0 = \boxed{41.9°}$

④ $b = 21, a = 18, m\angle C = 116°$

$c^2 = 21^2 + 18^2 - 2(21)(18)\cos 116$

$\sqrt{c^2} = \sqrt{1096.41}$

$\boxed{c = 33.1}$

$21^2 = 33.1^2 + 18^2 - 2(33.1)(18)\cos B$

$441 = 1419.61 - 1191.6\cos B$

$-978.61 = -1191.6\cos B$

$0.8213 = \cos B$

$\boxed{\cos^{-1} B = 34.8°}$

$\angle A = 180 - 34.8 - 116 = \boxed{29.2°}$

⑤ $b = 8.8, a = 13.5, c = 18.5$

$18.5^2 = 8.8^2 + 13.5^2 - 2(8.8)(13.5)\cos C$

$342.25 = 259.69 - 237.6\cos C$

$82.56 = -237.6\cos C$

$-0.3475 = \cos C$

$\boxed{\cos^{-1} C = 110.3°}$

$13.5^2 = 8.8^2 + 18.5^2 - 2(8.8)(18.5)\cos A$

$182.25 = 419.69 - 325.6\cos A$

$-237.44 = -325.6\cos A$

$0.7292 = \cos A$

$\boxed{\cos^{-1} A = 43.2°}$

$\angle B = 180 - 110.3 - 43.2 = \boxed{26.5°}$

⑥ $a = 11, c = 22, m\angle B = 46°$

$b^2 = 11^2 + 22^2 - 2(11)(22)\cos 46$

$\sqrt{b^2} = \boxed{268.785}$

$\boxed{b = 16.4}$

$22^2 = 11^2 + 16.4^2 - 2(11)(16.4)\cos C$

$484 = 389.96 - 360.8\cos C$

$94.04 = -360.8\cos C$

$-0.2606 = \cos C$

$\boxed{\cos^{-1} C = 105.1°}$

$\angle A = 180 - 105.1 - 46 = \boxed{28.9°}$

⑦ $A = \frac{1}{2}(13)(14)\sin 74$

$\boxed{A = 87.5\ km^2}$

⑧ $\angle Z = 180 - 35 - 126 = 19°$

$\frac{\sin 19}{z} = \frac{\sin 126}{12.7}$

$\frac{12.7\sin 19}{\sin 126} = \frac{z\sin 126}{\sin 126}$

$5.1 = z$

$A = \frac{1}{2}(5.1)(12.7)\sin 35$

$\boxed{A = 18.6\ in^2}$

⑨ $\angle D = 180 - 44 - 18 = 118$

$\frac{\sin 118}{14} = \frac{\sin 18}{c}$

$\frac{c\sin 118}{\sin 118} = \frac{14\sin 18}{\sin 118}$

$c = 4.9$

$A = \frac{1}{2}(4.9)(14)\sin 44$

$\boxed{A = 23.8\ cm^2}$

⑩ $\frac{\sin 40}{11} = \frac{\sin B}{6.4}$

$\frac{6.4\sin 40}{11} = \frac{11\sin B}{11}$

$0.374 = \sin B$

$\sin^{-1} B = 22.0°$

$\angle A = 180 - 22.0 - 40 = 118$

$A = \frac{1}{2}(11)(6.4)\sin 118$

$\boxed{A = 31.1\ in^2}$

(11) $S = \frac{7 + 14 + 15}{2}$

$S = 18$

$A = \sqrt{18(18-7)(18-14)(18-15)}$

$A = 48.7\ in^2$

(12) $S = \frac{5 + 11 + 13}{2}$

$S = 14.5$

$A = \sqrt{14.5(14.5-5)(14.5-11)(14.5-13)}$

$A = 26.9\ yd^2$