

① $3x + 4x + 5x = 180$ largest \angle is $5(15) = 75^\circ$

$12x = 180$

$x = 15$

② $3x + 5x + 6x = 14x = 126 \Rightarrow x = 9$ longest side is $6(9) = 54 \text{ cm}$

③ $7x + 8x = 90 \Rightarrow x = 6 \therefore$ the \angle s measure $7(6) = 42^\circ$ & $8(6) = 48^\circ$

④ $A = \frac{1}{2}bh = \frac{1}{2}(12x)(7x) = 42x^2 = 3024 \Rightarrow x = \sqrt{72} = 6\sqrt{2}$
hyp = $13(6\sqrt{2}) = 78\sqrt{2} \text{ cm}$

⑤ $3x + 2x = 90 \Rightarrow x = 18 \therefore \angle$ s are $3(18) = 54^\circ$ & $2(18) = 36^\circ$

⑥ $5x + 3x = 180 \Rightarrow x = 22.5$ obtuse $\angle = 5(22.5) = 112.5^\circ$

⑦ $2x = x + 20 \Rightarrow x = 20$ \angle s are $40^\circ, 20^\circ$ & 120°

⑧ $\frac{84}{63} = \frac{336}{x} \Rightarrow x = 252 \text{ mm}$

⑨ $3x = x + 1 \Rightarrow 2x = 1 \Rightarrow x = \frac{1}{2}^\circ$ & $\frac{3}{2}^\circ$

⑩ ratio of areas = (ratio of sides)² $\left(\frac{5}{4}\right)^2 = \frac{25}{16}$

⑪ $x + x + 10 + x + 20 = 180 \Rightarrow 3x = 150 \Rightarrow x = 50$

$50:60:70 \Rightarrow 5:6:7$

⑫ $4x + 4x + 9x = 17x = 340 \Rightarrow x = 20$
sides are $80, 80, 180$, but $80 + 80 = 160 < 180$
so not a \triangle !