Geo H 4.1-4.7 Quiz Review Puzzle

① $x-2+x-2+4x+10=180$

$6x+6=180$

$6x=174$

$\boxed{x=29}$

$3y+x-2=180$

$3y+29-2=180$

$3y+27=180$

$3y=153$

$\boxed{y=51}$

② $5x-7+x+25+90=180$

$6x+108=180$

$6x=72$

$\boxed{x=12}$

or

$5x-7+x+25=90$

$6x+18=90$

$6x=72$

$\boxed{x=12}$

③ isosceles, obtuse

④ $m\angle 1+45+56=180$

$m\angle 1+101=180$

$\boxed{m\angle 1=79^\circ}$

$79+50+m\angle 2=180$

$129+m\angle 2=180$

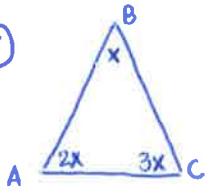
$\boxed{m\angle 2=51^\circ}$

$51+90+m\angle 3=180$

$141+m\angle 3=180$

$\boxed{m\angle 3=39^\circ}$

⑤



$x+2x+3x=180$

$6x=180$

$x=30$

$\boxed{\begin{array}{l} m\angle A=60^\circ \\ m\angle B=30^\circ \\ m\angle C=90^\circ \end{array}}$

⑥ $5x-30=3x-9+x$

$5x-30=4x-9$

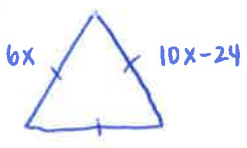
$x-30=-9$

$x=21$

$m\angle B=3(21)-9$

$\boxed{m\angle B=54^\circ}$

⑦



$6x=2x+24$

$4x=24$

$x=6$

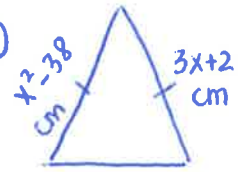
Sides: $6(6)$, $10(6)-24$, $2(6)+24$

$=36, 36, 36$

Perimeter: $36+36+36$

$\boxed{P=108 \text{ units}}$

⑧



$x^2-38 = 3x+2$

$x^2-3x-40=0$

$(x-8)(x+5)=0$

$x=8,\ x=-5$

Check: $x=8$: $(8)^2-38 = 64-38 = 26$ cm

$3(8)+2 = 26$ cm

$x=-5$: $(-5)^2-38 = 25-38 = -13$

$3(-5)+2 = -15+2 = -13$

Legs: 26cm and 26 cm

Total Perimeter: 82cm

Base = $82-26-26 = \boxed{30\text{cm}}$

⑨ $2x+15 = 5x-27$

$15 = 3x-27$

$42 = 3x$

$\boxed{x=14}$

$113 = 2(14)+15+5(14)-27+2y+1$

$113 = 28+15+70-27+2y+1$

$113 = 2y+87$

$26 = 2y$

$\boxed{y=13}$

⑩ AB: $\sqrt{(4-2)^2+(7-3)^2} = \sqrt{(2)^2+(4)^2} = \sqrt{4+16} = \sqrt{20} = \sqrt{4}\sqrt{5} = 2\sqrt{5}$

BC: $\sqrt{(6-4)^2+(1-7)^2} = \sqrt{(2)^2+(-6)^2} = \sqrt{4+36} = \sqrt{40} = \sqrt{4}\sqrt{10} = 2\sqrt{10}$

AC: $\sqrt{(6-2)^2+(1-3)^2} = \sqrt{(4)^2+(-2)^2} = \sqrt{16+4} = \sqrt{20} = \sqrt{4}\sqrt{5} = 2\sqrt{5}$

$\Big\rangle$ isosceles Δ

$\text{Slope}_{AB} = \frac{7-3}{4-2} = \frac{4}{2} = 2$ $\quad \text{Slope}_{BC} = \frac{1-7}{6-4} = \frac{-6}{2} = -3$ $\quad \text{Slope}_{AC} = \frac{1-3}{6-2} = \frac{-2}{4} = -\frac{1}{2}$

$\overline{AB} \perp \overline{AC}$ so ΔABC is a right triangle