

3rd Ch. 11 Pre-Test solutions

① $\frac{k}{k-6} = \frac{k+2}{k}$
 $k^2 = k^2 - 4k - 12$
 $4k = -12$
 $k = -3$

② $\frac{m+9}{18} = \frac{m+2}{m}$ $\begin{array}{r|l} -36 & -9 \\ \hline 1-30 & 35 \\ -18 & -16 \\ \hline 3, 12 & -9 \end{array}$
 $m+9m = 18m+36$
 $m^2 - 9m - 36 = 0$
 $(m+3)(m-12) = 0$
 $m+3=0$ $m-12=0$
 $m=-3$ $m=12$ $-3, 12$

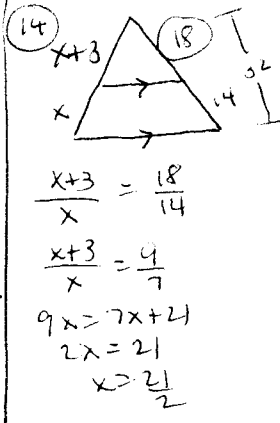
③ $\frac{\text{Canadian}}{\text{American}} = \frac{1}{0.18} = \frac{55}{x}$
 $x = 42.90$

④ $\frac{1/4}{6} = \frac{l}{33}$ $\frac{1/4}{6} = \frac{w}{24}$
 $6l = 33$
 $l = \frac{33}{4}$
 $6w = 6$
 $w = 1$
 $l = \frac{33}{4} = 8 \frac{1}{4}$
 $w = 1 \frac{3}{8} \times 1$

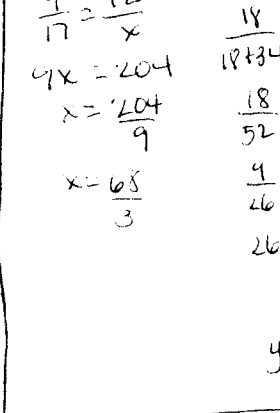
⑤ $\frac{\text{width}}{\text{ht}} = \frac{4}{6} = \frac{w}{21}$
 $\frac{4}{3} = \frac{w}{21}$
 $3w = 42 = 14$ $14''$

⑥ $\Delta ABC \sim \Delta DEF$
 ⑩ $\frac{AB}{DE} = \frac{BC}{EF} = \frac{AC}{DF}$
 $\frac{18}{32} = \frac{x-3}{x}$
 $\frac{9}{16} = \frac{x-3}{x}$
 $9x = 16x - 48$
 $-7x = -48$
 $x = \frac{48}{7}$ $\frac{48}{7}$

⑪ $\frac{AB}{DE} = \frac{BC}{EF} = \frac{AC}{DF}$
 $\frac{x+1}{5} = \frac{x-1}{2}$
 $2x+2 = 5x-5$
 $7 = 3x$
 $x = \frac{7}{3}$ $\frac{7}{3}$

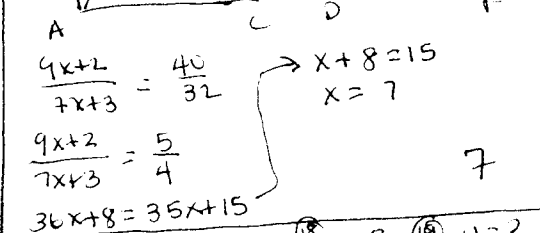


⑭ $\frac{x+3}{x} = \frac{18}{14}$
 $\frac{x+3}{x} = \frac{9}{7}$
 $7x = 7x + 21$
 $2x = 21$
 $x = \frac{21}{2}$

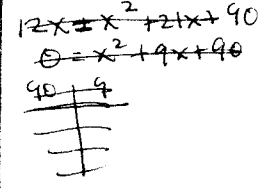


⑮ $\frac{18}{34} = \frac{12}{x}$
 $\frac{9}{17} = \frac{12}{x}$
 $9x = 204$
 $x = \frac{204}{9}$
 $x = \frac{68}{3}$

⑮ $x = ?$
 ⑯ $y = ?$
 Since "y" is the 3rd side of the Δ , you have to go back to old school, only method of small Δ to big Δ .



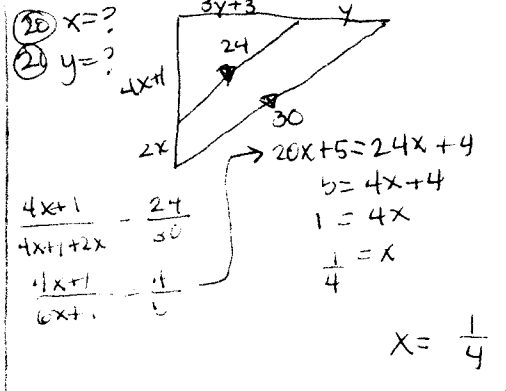
⑰ $\frac{4x+2}{7x+3} = \frac{40}{32}$
 $\frac{9x+2}{7x+3} = \frac{5}{4}$
 $36x+8 = 35x+15$
 $x+8 = 15$
 $x = 7$



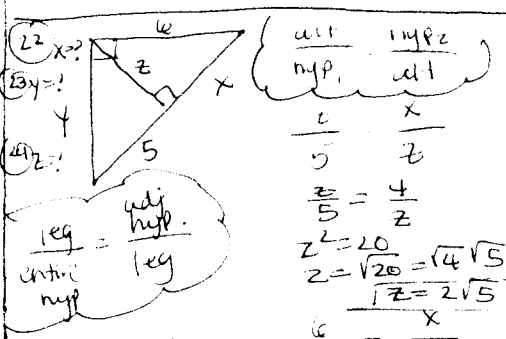
⑱ $\frac{x}{x+6} = \frac{x+15}{12}$
 $12x = x^2 + 21x + 90$
 $0 = x^2 + 9x + 90$
 $\frac{90}{9} = \frac{9}{9}$

⑱ $x = ?$ ⑲ $y = ?$
 $\frac{6}{x+6} = \frac{12}{x+15}$
 $12x+72 = 6x+90$
 $6x+72 = 90$
 $6x = 18$
 $x = 3$

⑲ $y = \frac{3}{15} = \frac{1}{5}$
 $\frac{1}{2} = \frac{y}{15}$
 $24 = 15$
 ⑱ $x = 3$
 ⑲ $y = \frac{15}{2}$



⑳ $x = ?$
 ㉑ $y = ?$
 $\frac{4x+1}{4x+1+2x} = \frac{24}{30}$
 $\frac{4x+1}{6x+1} = \frac{4}{5}$
 $20x+5 = 24x+4$
 $5 = 4x+4$
 $1 = 4x$
 $\frac{1}{4} = x$
 $x = \frac{1}{4}$



⑳ $x = ?$
 ㉑ $y = ?$
 ㉒ $z = ?$
 $\frac{\text{leg}}{\text{hyp}} = \frac{\text{adj. hyp.}}{\text{leg}}$
 $\frac{y}{5} = \frac{z}{x}$
 $z^2 = \frac{y^2}{5} = \frac{145}{5} = 29$
 $z = \sqrt{29}$
 $\frac{z}{5} = \frac{y}{x}$
 $x+5 = \frac{y}{z}$
 $x^2 + 5x = 36$
 $x^2 + 5x - 36 = 0$
 $(x+9)(x-4) = 0$
 $x = -9, 4$
 $x = 4$
 $y = 3\sqrt{5}$
 $z = 2\sqrt{5}$

Ch. 11 Review geo. Hon.

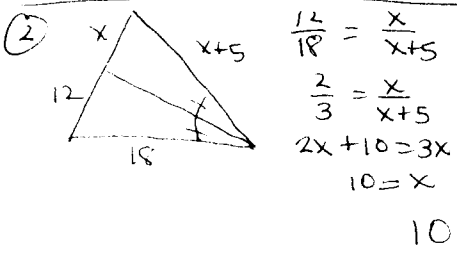
① $\frac{1''}{8'} = \frac{3\frac{1}{4}''}{l}$ & $\frac{1''}{8'} = \frac{2\frac{1}{2}''}{w}$

$\frac{1}{8}l = 6(\frac{13}{4})$ $\frac{1}{8}w = 6(\frac{5}{2})$
 $\frac{1}{8}l = 3(\frac{13}{2})$ $\frac{1}{8}w = 3(\frac{5}{1})$
 $\frac{1}{8}l = \frac{39}{2}$ $\frac{1}{8}w = 15$
 $l = \frac{39 \cdot 8}{2 \cdot 1}$ $w = 15(8)$
 $l = \frac{39 \cdot 4}{1 \cdot 1}$ $w = 120'$
 $l = 156'$ $156' \times 120'$

⑦ corr Area: $\frac{49}{4} = \frac{m^2}{n^2}$ ratio of corr V?
 $\therefore \frac{m}{n} = \frac{7}{2}$
 $\therefore \frac{m^3}{n^3} = \frac{7^3}{2^3} = \frac{343}{8}$

⑧ corr V = $\frac{8}{27} = \frac{m^3}{n^3} \therefore \frac{m}{n} = \frac{2}{3}$
 \therefore corr A is $\frac{m^2}{n^2}$ or $\frac{2^2}{3^2} = \frac{4}{9}$

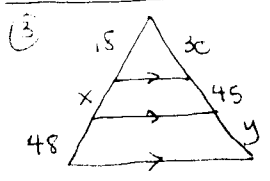
⑧ corr V = $\frac{8}{27} = \frac{m^3}{n^3}$
 $\therefore \frac{m}{n} = \frac{2}{3}$
 \therefore corr A = $\frac{m^2}{n^2} = \frac{(\frac{2}{3})^2}{4^2}$
 $= \frac{4}{9} \div 16$
 $= \frac{4}{9} \cdot \frac{1}{16}$
 $= \frac{1}{9} \cdot \frac{1}{4}$
 $= \frac{1}{36}$



$\frac{12}{18} = \frac{x}{x+5}$
 $\frac{2}{3} = \frac{x}{x+5}$
 $2x + 10 = 3x$
 $10 = x$
 10

⑨ A region = 500 cm²
 If dimensions were 4x bigger, what is new area?
 If each dimension is 4x bigger, then new area is 16x bigger.
 Therefore, new area will be 500 cm² (16) = 8000

8000 cm²



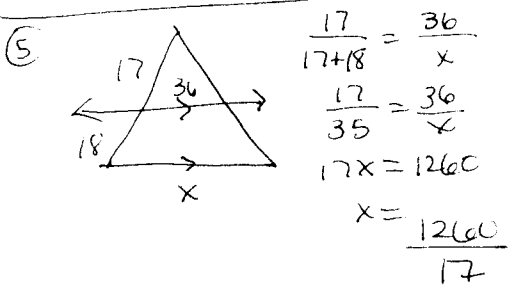
$\frac{18}{x} = \frac{30}{45}$
 $\frac{18}{x} = \frac{2}{3}$
 $2x = 54$
 $x = 27$
 27

⑩ $V_{\text{scale model}} = 2744 \text{ cm}^3$
 actual model have ^{dimensions} 3x bigger.
 $V_{\text{actual object}} = ?$

If length, width, & height of actual object are all 3x bigger than scale model, the volume of the actual object is (3)(3)(3) or 27 times bigger. \therefore Volume of actual object is 2744 cm³ (27) or 74,088 cm³

74,088 cm³

④ $\frac{18}{48} = \frac{30}{y} \rightarrow 3y = 240$
 $y = 80$
 $\frac{3}{8} = \frac{30}{y} \rightarrow 3y = 240$
 $y = 80$



$\frac{17}{17+8} = \frac{36}{x}$
 $\frac{17}{35} = \frac{36}{x}$
 $17x = 1260$
 $x = \frac{1260}{17}$

⑥ corr V = $\frac{729}{125} = \frac{m^3}{n^3}$ D=? if d=30
 $\therefore \frac{m}{n} = \frac{9}{5}$

Since $\frac{m}{n}$ represents the ratio of the corresponding 1-D measurements, you can now write the following proportion:
 $\frac{9}{5} = \frac{D}{d} \rightarrow 5D = 270$
 $D = 54$
 $\frac{9}{5} = \frac{D}{30}$
 54 cm