

Word Problems 2 Key

1a. $S = 4lw + 2wh$ $S = 102, l = 7, w = 3$

$102 = 4(7)(3) + 2(3)h \Rightarrow 102 = 84 + 6h$

$$\begin{array}{r} -84 \quad -84 \\ \hline 18 = 6h \end{array} \Rightarrow \boxed{h=3}$$

1b. $A = \frac{1}{2}h(B+b)$ $A = 180, B = 11, b = 7$

$180 = \frac{1}{2}h(11+7) \Rightarrow 180 = h \frac{18}{2} \Rightarrow \frac{180}{9} = \frac{9h}{9} \Rightarrow \boxed{h=20}$

1c. $V = \frac{4}{3}\pi r^3$ $r=3 \Rightarrow V = \frac{4}{3}\pi(3)^3 \Rightarrow V = \frac{4}{3}\pi \cdot 27 = \boxed{36\pi} \approx 113.1$

1d. $A = \pi ab \Rightarrow \boxed{\frac{A}{\pi a} = b}$

1e. $3x + y = 7$
 $\begin{array}{r} -3x \\ \hline y = 7 - 3x \end{array} \Rightarrow \boxed{y = 7 - 3x}$

1f. $A = P + PRT$
 $\begin{array}{r} -P \\ \hline A - P = PRT \end{array} \Rightarrow \frac{A-P}{PT} = \frac{PRT}{PT} \Rightarrow \boxed{\frac{A-P}{PT} = R}$

1g. $D = \frac{1}{4}fk \Rightarrow \frac{4D}{f} = \frac{fk}{f} \Rightarrow \boxed{\frac{4D}{f} = k}$

1h. $PR = x + y + z + w$
 $\begin{array}{r} -x \\ -y \\ \hline PR - x - y = z + w \end{array} \Rightarrow \begin{array}{r} -w \\ \hline PR - x - y = z + w \end{array}$

$\Rightarrow \boxed{PR - x - y - w = z}$

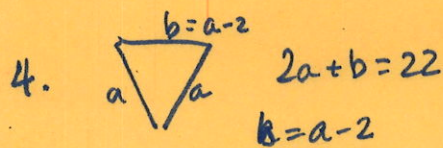
1i. $S = 2lw + 2wh \Rightarrow \frac{S - 2lw}{2w} = \frac{2wh}{2w} \Rightarrow \boxed{\frac{S - 2lw}{2w} = h}$

2. $A = \frac{1}{2}h(B+b) \Rightarrow A = \frac{1}{2}(12)(24+56) \Rightarrow A = 6(80) = 240 \text{ sq. in.}$

framing is perimeter; glass is area.

3. $14 = 32 + \frac{9}{5}C$
 $\begin{array}{r} -32 \\ \hline -18 = \frac{9}{5}C \end{array} \cdot \frac{5}{9} \Rightarrow \frac{-18}{1} \cdot \frac{5}{9} = C$

$\boxed{-10^\circ = C}$



$\Rightarrow 2a + a - 2 = 22$
 $3a - 2 = 22$
 $\begin{array}{r} +2 \\ \hline 3a = 24 \end{array}$

$\Rightarrow \frac{3a}{3} = \frac{24}{3} \Rightarrow \boxed{a = 8}$
 Short side is 6

5. $d=16$
 $r=8$
 $A = \pi(8)^2 = 64\pi$

$d=10$
 $r=5$
 $A = \pi(5)^2 = 25\pi$ 2 of these
 50π

16" pizza gives more area than 2 10"-pizzas.

6. $d=rt$ $d=11 \text{ km}$ $r=.5 \text{ km/hr}$
 $\frac{11}{.5} = \frac{.5t}{.5} \Rightarrow t=22 \text{ hr.}$

7. $-227 = 32 + \frac{9}{5}C$
 $\frac{-259}{-32} = \frac{9}{5}C$
 $(-259 = \frac{9}{5}C) \frac{5}{9}$

$\frac{-259 \cdot 5}{1 \cdot 9} = C$
 $C \approx -144$

$\frac{28.555 \times 5}{7}$
 $9) \frac{259}{18} = 14 \frac{7}{9}$

8. a. $T = 50 + \frac{N-40}{4}$
 $T = 50 + \frac{94-40}{4} \Rightarrow T = 50 + \frac{54}{4} = 50 + 13.5 = 63.50$

b. $T=N$

$(T = 50 + \frac{T-40}{4}) 4$

$= 4T = 200 + T - 40$
 $\frac{3T}{3} = \frac{160}{3}$

$T \approx 53.3^\circ$