

HW. p 226 Ex 3 no 2.

$$\begin{aligned} 2.1.1) \quad \frac{PT}{TW} &= \frac{PS}{SQ} \quad (ST \parallel QW, \text{ proportionality theorem}) \\ &= \frac{7-2}{2} \quad (\text{Given}) \\ &= \frac{5}{2} \end{aligned}$$

$$\begin{aligned} 2.1.2) \quad WR &= PW = 7 \quad (W \text{ is midpoint, given}) \\ \therefore TR &= 9 \\ \therefore \frac{PT}{TR} &= \frac{5}{9} \end{aligned}$$

$$\begin{aligned} 2.1.3) \quad \text{In } \triangle PSR \\ \frac{PA}{AS} &= \frac{1}{1} \quad (AW \parallel SR, \text{ proportionality theorem}) \\ \therefore PA &= AS \quad (A \text{ is midpoint}) \\ \text{but } PS &= 5 \quad (\text{Given}) \\ \therefore PA &= \frac{5}{2} \end{aligned}$$

$$\begin{aligned} \text{In } \triangle PAW \\ \frac{PA}{SQ} &= \frac{5/2}{2} = \frac{5}{4} \end{aligned}$$

$$\begin{aligned} 2.1.4. \quad \text{In } \triangle QWA \text{ is} \\ \frac{QV}{VW} &= \frac{QS}{SA} \quad (SV \parallel AW, \text{ proportionality theorem}) \\ &= \frac{2}{2.5} = \frac{4}{5} \end{aligned}$$

2.2.1) In  $\Delta PSR$  is:

$$AW = \frac{1}{2} SR \quad (AW \parallel SR, \text{Midpoint theorem, with } W \text{ as midpoint.})$$

$$= \frac{1}{2} (36)$$

$$= \underline{18} \quad \square$$

2.2.2.)  $\frac{VR}{SR}$  In  $\Delta TSR$  is

$$\frac{VR}{SR} = \frac{RW}{RT} \quad (ST \parallel VW, \text{proportionality theorem})$$

$$\frac{VR}{36} = \frac{7}{9} \quad (\text{proven already})$$

$$VR = 28$$

2.3)  $\frac{\Delta PSR}{\Delta WVR} = \frac{\frac{1}{2} \cdot 9 \cdot h}{\frac{1}{2} \cdot 7 \cdot (\frac{1}{2} \cdot h)}$

$\downarrow$

$$= \frac{18}{7}$$

$$\frac{\frac{1}{2} (9x) h}{\frac{1}{2} (7x) \frac{1}{2} h}$$

$$= \frac{\frac{1}{2} (PR)(SR) \sin R}{\frac{1}{2} (WR)(VR) \sin R}$$

$$= \frac{\frac{1}{2} (14)(9) \cancel{\sin R}}{\frac{1}{2} (7)(7) \cancel{\sin R}}$$

$$= \frac{18}{7}$$

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$$\Delta A = \frac{1}{2} ab \sin C$$

