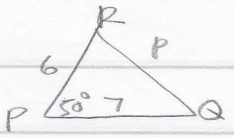
Bookwork Review A

P355

1. $q=6 \quad r=7 \quad \angle P=50^\circ$



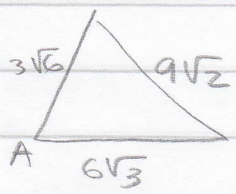
$A = \frac{1}{2} qr \sin P = \frac{1}{2}(6)(7)(\sin 50^\circ) = 16.1$

$p^2 = 6^2 + 7^2 - 2(6)(7)\cos 50^\circ$

$= 31.00584079$

$p = \sqrt{31.00584079} \approx \boxed{5.57}$

3.



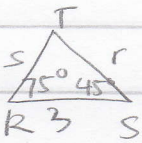
$(9\sqrt{2})^2 = (3\sqrt{6})^2 + (6\sqrt{3})^2 - 2(3\sqrt{6})(6\sqrt{3})\cos A$

$162 = 54 + 108 - 108\sqrt{2}\cos A$

$-108\sqrt{2}\cos A = 0 \rightarrow \cos A = 0$

$\boxed{A = 90^\circ}$

5.



$\angle T = 180^\circ - 75^\circ - 45^\circ = 60^\circ$

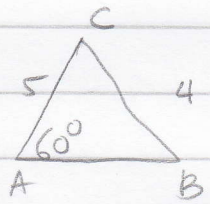
$\frac{3}{\sin 60^\circ} = \frac{r}{\sin 75^\circ} \rightarrow r = \frac{3\sin 75^\circ}{\sin 60^\circ} \approx \boxed{3.35}$

$\frac{3}{\sin 60^\circ} = \frac{s}{\sin 45^\circ} \rightarrow s = \frac{3\sin 45^\circ}{\sin 60^\circ} \approx \boxed{2.45}$

$= \frac{3 \cdot \frac{\sqrt{2}}{2}}{\frac{\sqrt{3}}{2}} = \frac{3\sqrt{2}}{2} \cdot \frac{2}{\sqrt{3}} = \frac{3\sqrt{6}}{3}$

$= \boxed{\sqrt{6}}$

7.



$\frac{4}{\sin 60^\circ} = \frac{5}{\sin B}$

$4\sin B = 5\sin 60^\circ$

$\sin B = \frac{5\sin 60^\circ}{4} \approx 1.082531755$

$\boxed{\text{not possible}}$

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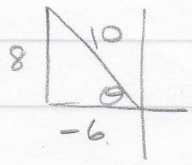
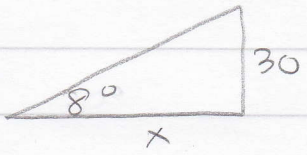
9. $\cos A = -0.6 \rightarrow$ A is obtuse $\rightarrow$ QII



$\sin A = \frac{8}{10} = 0.8$

$\tan A = \boxed{-\frac{4}{3}}$

11.

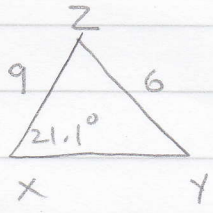


$\tan 8° = \frac{30}{x} \rightarrow x \tan 8° = 30$

$x = \frac{30}{\tan 8°} \approx 213.46 \text{ in}$

$\approx \boxed{17.8 \text{ ft}}$

13. Angle-Side-Side



$\frac{6}{\sin 21.1°} = \frac{9}{\sin Y} \rightarrow 6 \sin Y = 9 \sin 21.1°$

$\sin Y = \frac{9 \sin 21.1°}{6} \approx .53999$

Ref $\angle$: $\sin^{-1}(.539995212 2) \approx 32.7°$

I: $Y = \boxed{32.7°}$

$X = 21.1°$

$Z = 180° - 32.7° - 21.1°$

$= 126.2°$ must check to see if possible

II $Y = 180° - 32.7° = \boxed{147.3°}$

$X = 21.1°$

$Z = 180° - 147.3° - 21.1° = 11.6°$

must check to see if possible

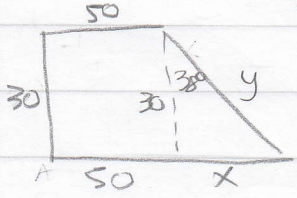
15. $A = 21 = \frac{1}{2}(9)(14) \sin \theta$

$21 = 63 \sin \theta \rightarrow \sin \theta = \frac{21}{63} = \frac{1}{3}$

Ref $\angle = 19.5°$

I: $\theta = \boxed{19.5°}$ II: $180° - 19.5° = \boxed{160.5°}$

21.



$\tan 38° = \frac{x}{30} \rightarrow x = 30 \tan 38° = 23.4$

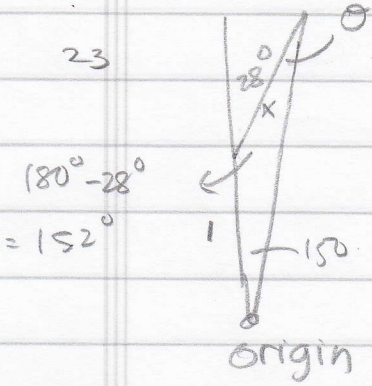
$\cos 38° = \frac{30}{y} \rightarrow y = \frac{30}{\cos 38°} = 38.1$

Perimeter $= 50 + 30 + 50 + 23.4 + 38.1 = 191.5 \text{ ft}$

cost $= 191.5(\$2.50)$

$\boxed{\$478.77}$

23



$$\frac{x}{\sin 15^\circ} = \frac{1}{\sin \theta}$$

$$\frac{x}{\sin 15^\circ} = \frac{1}{\sin 13^\circ} \rightarrow x = 1.15 \text{ nautical mile}$$

1.15 nautical mile