HW 12.4

~~p688~~

$\sin 30 = 1/2$

$\cos 30 = \sqrt{3}/2$

$\tan 30 = \sqrt{3}/3$

$\sin 60 = \sqrt{3}/2$

$\cos 60 = 1/2$

$\tan 60 = \sqrt{3}/1 = \sqrt{3}$

$\sin 45 = \frac{1}{\sqrt{2}} = \frac{\sqrt{2}}{2}$

$\cos 45 = \frac{1}{\sqrt{2}} = \frac{\sqrt{2}}{2}$

$\tan 45 = 1/1 = 1$

12. a) $\tan\theta = \frac{40^2}{60(9.8)}$

$\tan\theta = 2.72$

$\theta = \tan^{-1}(2.72)$

$\theta =$

12. a) $\frac{40\text{km}}{1\text{hr}}\left(\frac{1\text{hr}}{60\text{min}}\right)\left(\frac{1\text{min}}{60\text{sec}}\right)\left(\frac{1000\text{m}}{1\text{km}}\right) = 11.1\text{ m/s}$

$\tan\theta = \frac{11.1^2}{60(9.8)}$

$\tan\theta = 0.2095$

$\theta = 11.8°$

b) $\tan 36 = \frac{V^2}{1700(9.8)}$

$1700(9.8)\tan 36 = V^2$

$12104.2 = V^2$

$110.02 = V$

$\frac{110.02\text{m}}{1\text{s}}\left(\frac{60\text{s}}{1\text{min}}\right)\left(\frac{60\text{min}}{1\text{hr}}\right)\left(\frac{1\text{km}}{1000\text{m}}\right) = 396\text{ km/hr}$

HW 12.4

p694

1. $\frac{\sin 50.6}{b} = \frac{\sin 85.4}{12.5}$

$12.5\sin 50.6 = \sin 85.4(b)$

$9.3\text{cm} = b$

2. $\frac{\sin 55.3}{8.13} = \frac{\sin P}{8.83}$

$8.83\sin 55.3 = 8.13\sin P$

$0.896 = \sin P$

$63.7° = \angle P$

3. $\frac{\sin 37}{4.7} = \frac{\sin x}{6}$

$6\sin 37 = 4.7\sin x$

$0.768 = \sin x$

$50.2° = x$

$180 - 37 - 50.2 = z$

$92.8° = z$

4. $\frac{\sin 92.8}{c} = \frac{\sin 37}{4.7}$

$4.7\sin 92.8 = c\sin 37$

$7.8\text{cm} = c$

5. a) $\angle B = 25.5$

$\frac{\sin 25.5}{3.77} = \frac{\sin 47}{a}$

$a = 6.4\text{cm}$

$\frac{\sin 25.5}{3.77} = \frac{\sin 107.5}{c}$

$c = 8.4\text{cm}$

b) $\frac{\sin 107.9}{8.26} = \frac{\sin J}{5.44}$

$\angle J = 38.8°$

$\angle L = 33.3°$

$\frac{\sin 33.3}{\ell} = \frac{\sin 107.9}{8.26}$

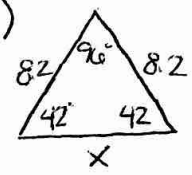
$\ell = 4.8\text{cm}$

6.

$\frac{\sin 17}{50} = \frac{\sin 70}{c}$

$c = 160.7\text{ft}$

7. a)



$\frac{\sin 96}{x} = \frac{\sin 42}{8.2}$

$x = 12.8\text{cm}$

WKST

1. $y = 7$ ft
   $x = 7\sqrt{3}$ ft

2. $39 = y\sqrt{3}$

$\left(\frac{\sqrt{3}}{\sqrt{3}}\right)\frac{39}{\sqrt{3}} = y$

$\frac{39\sqrt{3}}{3} = y$

$13\sqrt{3}$ ft $= y$

$26\sqrt{3}$ ft $= x$

3. $8 = x\sqrt{2}$

$\left(\frac{\sqrt{2}}{\sqrt{2}}\right)\frac{8}{\sqrt{2}} = x$

$4\sqrt{2}$ m $= x$

$4\sqrt{2}$ m $= y$

4. $\cos X = \frac{3.4}{7.8}$

$X = \cos^{-1}(3.4/7.8)$

$X = 64.2°$

5. $\sin 78 = \frac{x}{11}$

$11 \sin 78 = x$

$10.8\text{m} = x$