PC

HW50

p227 #1-4, 7, 9-12, 15

1. $\sin\theta = \frac{8\sqrt{2}}{18} = \frac{4\sqrt{2}}{9}$

$\cos\theta = \frac{14}{18} = \frac{7}{9}$

$\tan\theta = \frac{8\sqrt{2}}{14} = \frac{4\sqrt{2}}{7}$

$\csc\theta = \frac{18}{8\sqrt{2}} = \frac{9}{4\sqrt{2}}\left(\frac{\sqrt{2}}{\sqrt{2}}\right) = \frac{9\sqrt{2}}{8}$

$\sec\theta = \frac{9}{7}$

$\cot\theta = \frac{7}{4\sqrt{2}}\left(\frac{\sqrt{2}}{\sqrt{2}}\right) = \frac{7\sqrt{2}}{8}$

2. $\sin\theta = \frac{2\sqrt{14}}{15}$

$\cos\theta = \frac{13}{15}$

$\tan\theta = \frac{2\sqrt{14}}{13}$

$\csc\theta = \frac{15}{2\sqrt{14}}\left(\frac{\sqrt{14}}{\sqrt{14}}\right) = \frac{15\sqrt{14}}{28}$

$\sec\theta = \frac{15}{13}$

$\cot\theta = \frac{13}{2\sqrt{14}}\left(\frac{\sqrt{14}}{\sqrt{14}}\right) = \frac{13\sqrt{14}}{28}$

3. $\sin\theta = \frac{9}{\sqrt{97}}\left(\frac{\sqrt{97}}{\sqrt{97}}\right) = \frac{9\sqrt{97}}{97}$

$\cos\theta = \frac{4}{\sqrt{97}} = \frac{4\sqrt{97}}{97}$

$\tan\theta = \frac{9}{4}$

$\csc\theta = \frac{\sqrt{97}}{9}$

$\sec\theta = \frac{\sqrt{97}}{4}$

$\cot\theta = \frac{4}{9}$

4. $\sin\theta = \frac{12}{37}$

$\cos\theta = \frac{35}{37}$

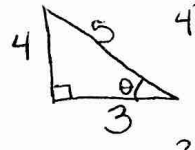
$\tan\theta = \frac{12}{35}$

$\csc\theta = \frac{37}{12}$

$\sec\theta = \frac{37}{35}$

$\cot\theta = \frac{35}{12}$

9. $\sin\theta = 4/5$



$4^2 + x^2 = 5^2$

$x^2 = 9$

$x = 3$

$\cos\theta = 3/5$

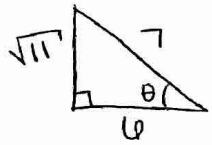
$\tan\theta = 4/3$

$\csc\theta = 5/4$

$\sec\theta = 5/3$

$\cot\theta = 3/4$

10. $\cos\theta = \frac{6}{7}$



$x^2 + 6^2 = 7^2$

$x^2 = 11$

$x = \sqrt{11}$

$\sin\theta = \frac{\sqrt{11}}{7}$

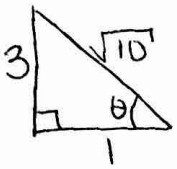
$\tan\theta = \frac{\sqrt{11}}{6}$

$\csc\theta = \frac{7}{\sqrt{11}}\left(\frac{\sqrt{11}}{\sqrt{11}}\right) = \frac{7\sqrt{11}}{11}$

$\sec\theta = \frac{7}{6}$

$\cot\theta = \frac{6}{\sqrt{11}} = \frac{6\sqrt{11}}{11}$

11. $\tan\theta = 3 = \frac{3}{1}$



$3^2 + 1^2 = x^2$

$10 = x^2$

$\sqrt{10} = x$

$\sin\theta = \frac{3}{\sqrt{10}} = \frac{3\sqrt{10}}{10}$

$\cos\theta = \frac{1}{\sqrt{10}} = \frac{\sqrt{10}}{10}$

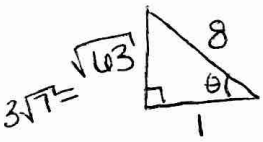
$\tan\theta = 3$

$\csc\theta = \frac{\sqrt{10}}{3}$

$\sec\theta = \sqrt{10}$

$\cot\theta = 1/3$

12. $\sec\theta = 8 = \frac{8}{1}$ $\frac{hyp}{adj}$



$1^2 + x^2 = 8^2$

$x^2 = 63$

$x = \sqrt{63}$

$\sin\theta = \frac{\sqrt{63}}{8} = \frac{3\sqrt{7}}{8}$

$\cos\theta = 1/8$

$\tan\theta = \sqrt{63}$

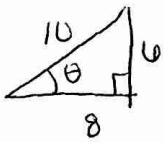
$\csc\theta = 8/\sqrt{63} = \frac{8\sqrt{63}}{63} = \frac{24\sqrt{7}}{63} = \frac{8\sqrt{7}}{21}$

$\cot\theta = \frac{1}{\sqrt{63}} = \frac{\sqrt{63}}{63} = \frac{3\sqrt{7}}{63} = \frac{\sqrt{7}}{21}$

7. $6^2 + x^2 = 10^2$

$x^2 = 64$

$x = 8$



$\sin\theta = \frac{6}{10} = \frac{3}{5}$

$\cos\theta = \frac{8}{10} = \frac{4}{5}$

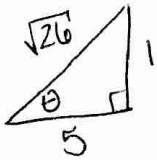
$\tan\theta = \frac{6}{8} = \frac{3}{4}$

$\csc\theta = \frac{10}{6} = \frac{5}{3}$

$\sec\theta = \frac{10}{8} = \frac{5}{4}$

$\cot\theta = \frac{8}{6} = \frac{4}{3}$

15. $\cot\theta = 5 = \frac{5}{1} = \frac{adj}{opp}$



$1^2 + 5^2 = x^2$

$26 = x^2$

$\sqrt{26} = x$

$\sin\theta = \frac{1}{\sqrt{26}} = \frac{\sqrt{26}}{26}$

$\cos\theta = \frac{5}{\sqrt{26}} = \frac{5\sqrt{26}}{26}$

$\tan\theta = 1/5$

$\csc\theta = \sqrt{26}$

$\sec\theta = \frac{\sqrt{26}}{5}$