

7. D: $\tan 54^\circ = \frac{Y}{80}$
 $(80)(\tan 54^\circ) = Y$
 $Y \approx (80)(1.3764)$
 $Y \approx 110.1 \text{ m}$

$110.1 - 98.8 = 11.3 \text{ m}$

8. B: $H^2 = 80^2 + 98.8^2$
 $H^2 = 6,400 + 9,761.44$
 $H^2 = 16,161.44$
 $H = \sqrt{16,161.44}$
 $H \approx 127.1 \text{ m}$

9. A: $\sin 10^\circ = \frac{Y}{100}$
 $(100)(\sin 10^\circ) = Y$
 $Y \approx (100)(.1736)$
 $Y \approx 17.4 \text{ ft}$

10. B: $\sin 80^\circ = \frac{X}{100}$
 $(100)(\sin 80^\circ) = X$
 $X \approx (100)(.9848)$
 $X \approx 98.5 \text{ ft}$

11. D: $\tan 30^\circ = \frac{1}{\sqrt{3}} = \frac{1(\sqrt{3})}{\sqrt{3}(\sqrt{3})} = \frac{\sqrt{3}}{3}$

12. C: $\arcsin .8192 \approx 55^\circ$

13. C: $2'' \times \frac{1'}{60''} \approx .03$

$21.03' \times \frac{1^\circ}{60'} \approx .35^\circ$

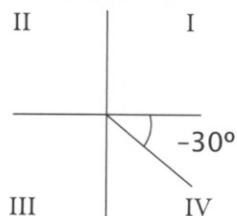
$46^\circ + .35^\circ = 46.35^\circ$

14. A: $\frac{\sin \alpha}{\cos \alpha} = \tan \alpha$

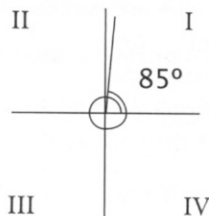
15. B: $\frac{1}{\cos \alpha} = \sec \alpha$

Test 7

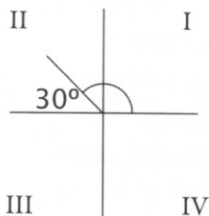
1. D: 4th



2. A: 1st



3. A: 30°



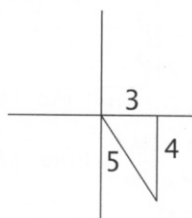
4. D: 77°



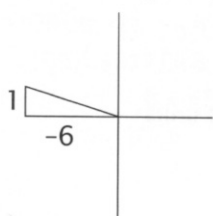
5. D: Sine is positive when Y is positive.
 Cosine is positive when X is positive.
 Tangent is positive when X and Y have the same sign, and negative when X and Y have different signs.

6. C

7. C: $\sin \theta = \frac{-4}{5} = -\frac{4}{5}$

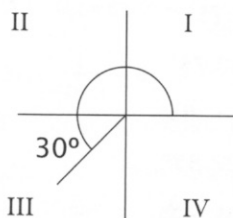


8. D: $\tan \theta = \frac{1}{-6} = -\frac{1}{6}$



9. B: $\sin 30^\circ = \frac{1}{2}$

in quadrant III, sine is negative: $-\frac{1}{2}$



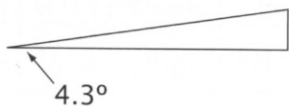
10. A

11. A: $\frac{1}{\csc \theta} = \sin \theta$

12. B: $\frac{1}{\sec \theta} = \cos \theta$

13. D: $.16^\circ \times 60 = 9.6'$
 $.6' \times 60 = 36''$
 $32^\circ 9' 36''$

14. C: $\tan 4.3 = \frac{Y}{20}$
 $(20)(\tan 4.3) = Y$
 $Y \approx (20)(.0752)$
 $Y \approx 1.5 \text{ mi}$



15. D: $\frac{2 + \frac{6}{X}}{3 + \frac{12}{X-1}} = \frac{\frac{2(X)+6}{(X)} + \frac{6}{X}}{\frac{3(X-1)+12}{(X-1)} + \frac{12}{X-1}} = \frac{\frac{2X+6}{X}}{\frac{3(X-1)+12}{X-1}} =$
 $\frac{\frac{2X+6}{X}}{\frac{3X-3+12}{X-1}} = \frac{2X+6}{3X+9} = \left(\frac{2X+6}{X}\right) \left(\frac{X-1}{3X+9}\right) =$
 $\left(\frac{2(X+3)}{X}\right) \left(\frac{X-1}{3(X+3)}\right) = \left(\frac{2}{X}\right) \left(\frac{X-1}{3}\right) = \frac{2(X-1)}{3X}$

Test 8

- D: $\cos 81^\circ = \sin(90^\circ - 81^\circ) = \sin 9^\circ$
- A: $\sec 25^\circ = \csc(90^\circ - 25^\circ) = \csc 65^\circ$
- B: $\cot 34^\circ 16' = \tan(90^\circ - 34^\circ 16') = \tan 55^\circ 44'$
- A: $\tan(-\theta) = -\tan \theta$
- B: $\cos(-\theta) = -\cos \theta$ is not true:
 $\cos \theta = \cos(-\theta)$

6. C: $\frac{\cos \alpha}{\sec \alpha} = \frac{\cos \alpha}{\frac{1}{\cos \alpha}} = \cos \alpha \left(\frac{\cos \alpha}{1}\right) = \cos^2 \alpha$

7. D: $\cos(-\theta)\tan(-\theta) = \cos \theta(-\tan \theta) =$
 $\cos \theta \left(-\frac{\sin \theta}{\cos \theta}\right) = -\sin \theta$

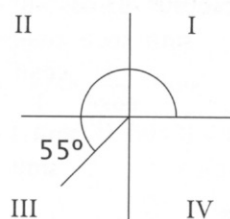
8. C: $\left(\frac{1}{\tan \theta}\right) \left(\frac{1}{\cot \theta}\right) = \left(\frac{\cos \theta}{\sin \theta}\right) \left(\frac{\sin \theta}{\cos \theta}\right) = 1$

9. D: $(\cos \alpha + 1)(\cos \alpha - 1) =$
 $\cos^2 \alpha - \cos \alpha + \cos \alpha - 1 = \cos^2 \alpha - 1$

10. A: $\sec \beta - \sin \beta = \sec \beta - \cos(90^\circ - \beta)$

11. D: $L^2 + 8^2 = 12^2$
 $L^2 + 64 = 144$
 $L^2 = 80$
 $L = \sqrt{80}$
 $L \approx 8.94 \text{ m}$

12. B: 55° , quadrant III



13. B: $\cos \theta$ is positive in quadrants I and IV

14. A: $\arccos .6192 \approx 51.7^\circ$

15. C: $\sin \theta \csc \theta = \left(\frac{\text{opp}}{\text{hyp}}\right) \left(\frac{\text{hyp}}{\text{opp}}\right) = 1$

$\tan \theta \cot \theta = \left(\frac{\text{opp}}{\text{adj}}\right) \left(\frac{\text{adj}}{\text{opp}}\right) = 1$

$\sin \theta \sec \theta = \left(\frac{\text{opp}}{\text{hyp}}\right) \left(\frac{\text{hyp}}{\text{adj}}\right) \neq 1$

$\cos \theta \sec \theta = \left(\frac{\text{adj}}{\text{hyp}}\right) \left(\frac{\text{hyp}}{\text{adj}}\right) = 1$