

14. B: Since the opposite side and the adjacent side are congruent:

$$\frac{\text{opp}}{\text{hyp}} = \frac{\text{adj}}{\text{hyp}} \text{ or } \sin \theta = \cos \theta$$

15. A: $\frac{36 \text{ qt}}{1} \times \frac{1 \text{ gal}}{4 \text{ qt}}$

Test 5

1. C: $\cos 38^\circ \approx .7880$
2. B: $\tan 79^\circ \approx 5.1446$
3. B: $\cos \theta = .9659$
 $\theta = \arccos(.9659)$
 $\theta \approx 15^\circ$
4. A: $\arctan .8391 \approx 40^\circ$
5. D: $14'' \times \frac{1'}{60''} \approx .23'$
 $29' + .23' = 29.23'$
 $29.23' \times \frac{1^\circ}{60'} \approx .49^\circ$
 $30^\circ + .49^\circ = 30.49^\circ$
6. C: $.36^\circ \times 60 = 21.6'$
 $.6' \times 60 = 36''$
 $28^\circ 21' 36''$
7. D: $\tan \theta = \frac{13}{14}$
 $\tan \theta \approx .9286$
 $\theta \approx \arctan .9286$
 $\theta \approx 42.9^\circ$
8. A: $90^\circ - 42.9^\circ = 47.1^\circ$
9. C: $13^2 + 14^2 = H^2$
 $169 + 196 = H^2$
 $365 = H^2$
 $H = \sqrt{365}$
 $H \approx 19.1$
10. A: $42.9^\circ = 42^\circ + .9^\circ$
 $.9^\circ \times 60 = 54'$
 $42^\circ 54'$
11. D: $\cos \theta = \frac{1}{\sec \theta}$
12. C: $\frac{\cos \alpha}{\sin \alpha} = \cot \alpha$
13. B: $\sin 30^\circ = \cos(90^\circ - 30^\circ) = \cos 60^\circ$

14. B: $\tan 45^\circ = 1$

15. D: $\frac{10\sqrt{2}}{2} = 5\sqrt{2}$

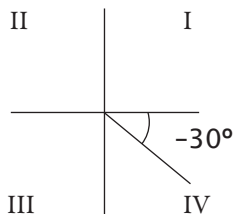
Test 6

1. D: $\tan 42^\circ = \frac{X}{926}$
2. A: $\tan 42^\circ = \frac{X}{926}$
 $(926)(\tan 42^\circ) = X$
 $X \approx 926(.9004)$
 $X \approx 833.8 \text{ m}$
3. B: $\tan \theta = \frac{833.8 + 50}{926}$
 $\tan \theta = \frac{883.8}{926}$
 $\tan \theta \approx .9544$
 $\theta = \arctan .9544$
 $\theta \approx 43.7^\circ$
 $43.7^\circ = 43^\circ + .7^\circ$
 $.7^\circ \times 60 = 42'$
 $43^\circ 42'$
4. B: $H^2 = 926^2 + 833.8^2$
 $H^2 = 857,476 + 695,222.44$
 $H^2 = 1,552,698.44$
 $H = \sqrt{1,552,698.44}$
 $H \approx 1,246.1 \text{ m}$
5. C: $\tan 54^\circ = \frac{Y}{80}$
 $80 \tan 54^\circ = Y$
 $Y = 80 \tan 54^\circ$
6. A: $\tan 51^\circ = \frac{B}{80}$
 $(80)(\tan 51^\circ) = B$
 $B \approx (80)(1.2349)$
 $B \approx 98.8 \text{ m}$

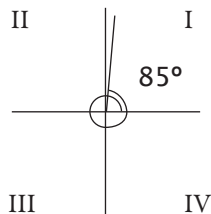
7. D: $\tan 54^\circ = \frac{Y}{80}$
 $(80)(\tan 54^\circ) = Y$
 $Y \approx (80)(1.3764)$
 $Y \approx 110.1 \text{ m}$
 $110.1 - 98.8 = 11.3 \text{ m}$
8. B: $H^2 = 80^2 + 98.8^2$
 $H^2 = 6,400 + 9,761.44$
 $H^2 = 16,161.44$
 $H = \sqrt{16,161.44}$
 $H \approx 127.1 \text{ m}$
9. A: $\sin 10^\circ = \frac{Y}{100}$
 $(100)(\sin 10^\circ) = Y$
 $Y \approx (100)(.1736)$
 $Y \approx 17.4 \text{ ft}$
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

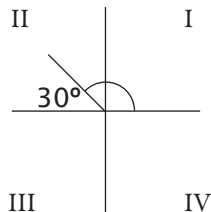
1. D: 4th



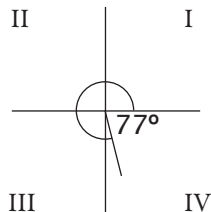
2. A: 1st



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

