14. B : Since the opposite side and the adjacent side are congruent:
$\frac{\text{opp}}{\text{hyp}} = \frac{\text{adj}}{\text{hyp}}$ 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: $\tan 54^\circ = \frac{Y}{80}$

$(80)(\tan 54^\circ) = Y$

$Y \approx (80)(1.3764)$

$Y \approx 110.1$ m

$110.1 - 98.8 = 11.3$ m

8. B: $H^2 = 80^2 + 98.8^2$

$H^2 = 6{,}400 + 9{,}761.44$

$H^2 = 16{,}161.44$

$H = \sqrt{16{,}161.44}$

$H \approx 127.1$ m

9. A: $\sin 10^\circ = \frac{Y}{100}$

$(100)(\sin 10^\circ) = Y$

$Y \approx (100)(.1736)$

$Y \approx 17.4$ ft

10. B: $\sin 80^\circ = \frac{X}{100}$

$(100)(\sin 80^\circ) = X$

$X \approx (100)(.9848)$

$X \approx 98.5$ 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: $2'' \times \frac{1'}{60''} \approx .03$

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

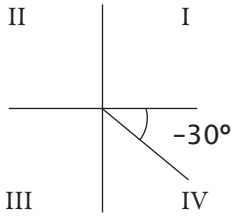
$46^\circ + .35^\circ = 46.35^\circ$

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

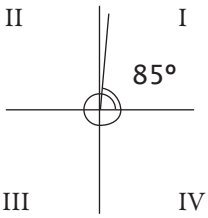
15. B: $\frac{1}{\cos\alpha} = \sec\alpha$

Test 7

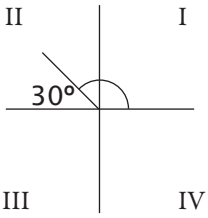
1. D: 4th



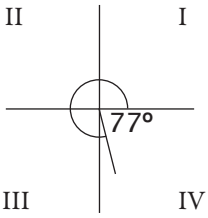
2. A: 1st



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