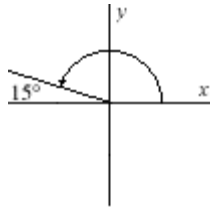


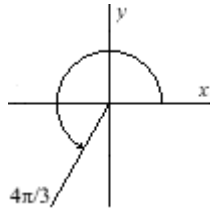
The following answers are for the sample Trigonometry Placement Exam.

ANSWERS (Trigonometry)

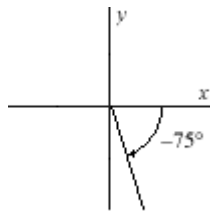
1. a)



b)



c)



2. a) $\frac{25\pi}{18}$ cm.

b) 5 cm.

3. a) i) $\sin A = \frac{a}{c}$

ii) $\tan B = \frac{b}{a}$

iii) $\csc B = \frac{c}{b}$

b) i) $\cos A = \frac{1}{5}$

ii) $\cot A = \frac{\sqrt{6}}{12}$

iii) $\sec B = \frac{5\sqrt{6}}{12}$

4. $AB = 8 + 2\sqrt{3}$

5. a) $\sin \theta = q$, $\cos \theta = p$, $\tan \theta = \frac{q}{p}$

b) i) $\sin 300^\circ = -\frac{\sqrt{3}}{2}$

ii) $\sec \frac{13\pi}{6} = \frac{2\sqrt{3}}{3}$

6. $b = 54.65^\circ$

7. 7.29 and 24.43

8. a) $\sin 2\theta = 2 \sin \theta \cos \theta$

b) $\cos^2 \theta = \frac{1 + \cos 2\theta}{2}$

c) $\tan^2 \theta + 1 = \sec^2 \theta$

9. a)

$$\frac{\sec x - 1}{\sin x \sec x} = \frac{1 - \cos x}{\sin x} = \frac{2 \sin^2 \frac{1}{2} x}{2 \sin \frac{1}{2} x \cos \frac{1}{2} x} = \tan \frac{1}{2} x$$

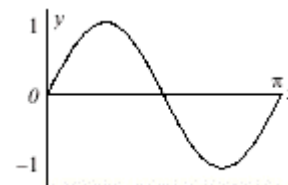
b)

$$\begin{aligned} \cos 3x &= \cos(x + 2x) = \cos x \cos 2x - \sin x \sin 2x \\ &= \cos x(2 \cos^2 x - 1) - 2 \cos x(1 - \cos^2 x) \\ &= 4 \cos^3 x - 3 \cos x \end{aligned}$$

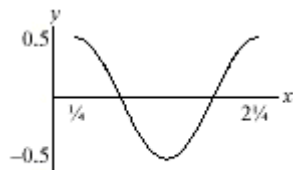
10. a) $x = 5.82$ or 2.68

b) $x = 0, \pi, 2\pi, 0.96, 2.19, 4.10$ or 5.33

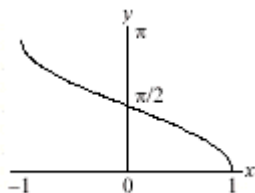
11. a)



b)



12. a)



b) $\sin^{-1}\left(-\frac{1}{2}\right) = -\frac{\pi}{6},$

$$\sin\left[2\sin^{-1}\left(\frac{3}{4}\right)\right] = \frac{3\sqrt{7}}{8}$$

c) $x = \frac{\sqrt{2}}{2}$

13. $\frac{1}{16}\tan^{-1}\frac{x}{2} + \frac{1}{8}\frac{x}{x^2+4}$

14. $\frac{1}{2}$