Jan 17 2022

8.7 Chapter Review

Section 8.1

1. Determine the smallest positive coterminal angle for the given angle.

a) $-20°$ 340°

b) $-100°$ _____

c) $-240°$ 360 − 240 = 120 120°

d) $-280°$ _____

e) $400°$ 40°

f) $500°$ _____

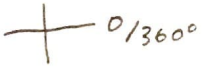
g) $821°$ 821 − 720 = 101 101°

h) $-821°$ _____

i) $-537°$ 720 − 537 = 183 183°

j) $537°$ _____

2. Find the reference angle for the following.

a) $73°$ 

b) $137°$ _____

c) $291°$ _____

d) $204°$ _____

e) $-137°$ _____

f) $-291°$ _____

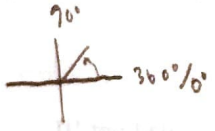
g) $-204°$ _____

h) $1000°$ _____

i) $-835°$ _____

j) $892°$ _____

3. Find all angles, $0° \le \theta < 360°$, that have the given reference angle.

a) $71°$ 

71° 251° 109° 289°

b) $43°$ _____

c) $1°$ _____

d) $89°$ _____

Section 8.2

4. Given a point on the terminal side of angle θ. Evaluate the three trigonometric functions of θ.

a) $(3,7)$

b) $(-1,2\sqrt{2})$

c) $(-2\sqrt{3},2)$

d) $(-\sqrt{17},-2\sqrt{2})$

e) $(2\sqrt{5},-\sqrt{5})$

f) $(-3\sqrt{2},\sqrt{7})$

5. Given a linear equation of the terminal side of angle θ, with a restriction, find the value of the three trigonometric functions of θ.

a) $y=\frac{2}{3}x,\ x\geq 0$

b) $y=\frac{2}{3}x,\ x\leq 0$

c) $y=-\frac{1}{4}x,\ x\geq 0$

d) $y=-\frac{1}{4}x,\ x\leq 0$

e) $y=\frac{5}{3}x,\ x\leq 0$

f) $y=-\frac{5}{3}x,\ x\geq 0$

6. Given one of the three primary trigonometric functions, find the other two trigonometric functions of θ.

a) $\sin\theta=\frac{2}{\sqrt{5}}$, θ in quadrant I

b) $\tan\theta=-\frac{2}{\sqrt{21}}$, θ in quadrant II

c) $\cos\theta=-0.416$, θ in quadrant III

d) $\sin\theta=-0.421$, θ in quadrant IV

e) $\cos\theta=-\frac{1}{3}$, θ in quadrant II

f) $\tan\theta=1.372$, θ in quadrant III

Section 8.3

7. Find all θ, $0° \le \theta < 360°$, which satisfy each equation.

a) $\sin\theta = \frac{\sqrt{2}}{2}$

b) $\cos\theta = -\frac{\sqrt{3}}{2}$

c) $\tan\theta = \frac{\sqrt{3}}{3}$

d) $\sin\theta = 0$

e) $\cos\theta = 0.7071$

f) $\tan\theta = -1.732$

g) $\sin\theta = -\frac{1}{\sqrt{2}}$

h) $\cos\theta = -\frac{1}{2}$

i) $\tan\theta =$ undefined

j) $\tan\theta = -1$

Section 8.4

8. Solve ΔABC by using right triangles, not by using the Law of Sines or Cosines.

a) $\angle A = 40°,\ \angle B = 60°,\ b = 8$

b) $a = 4,\ b = 5,\ c = 6$

c) $\angle C = 47°,\ a = 8,\ b = 5$

d) $\angle B = 110°,\ \angle C = 32°,\ a = 5$

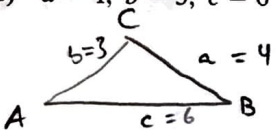
Sections 8.5, 8.6

9. Solve ΔABC using the Law of Sines or Law of Cosines to begin the solution.

a) $\angle B = 104°,\ a = 17,\ c = 11$

b) $\angle A = 40°,\ \angle B = 40°,\ c = 2$

c) $a = 4,\ b = 3,\ c = 6$



$\cos A = \dfrac{a^2 - b^2 - c^2}{-2bc}$

$\cos A = \dfrac{4^2 - 3^2 - 6^2}{-2(3)(6)}$

SSSA

$\dfrac{\sin 36.3}{4} = \dfrac{\sin B}{3}$

$\dfrac{3\sin 36.3}{4} = \sin B$

$\angle A = 36.3°$

$\angle B = 26.4°$

$\angle C = 117.3°$

d) $\angle A = 95°,\ \angle B = 45°,\ a = 5$

e) $\angle A = 50°,\ a = 3,\ b = 2$

f) $\angle A = 60°,\ a = 4,\ b = 5$

g) $\angle B = 20°,\ b = 4,\ c = 6$

h) $\angle C = 60°,\ a = 2\sqrt{6},\ c = 3\sqrt{2}$

10. In ΔABC, $b < a < c$. What does this imply about angles A, B, and C?

11. Given ΔABC, with angle θ between sides b and c, find θ if $a^2 = b^2 + c^2 + bc$.