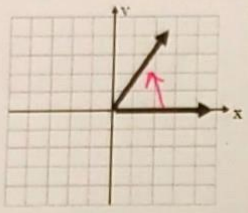
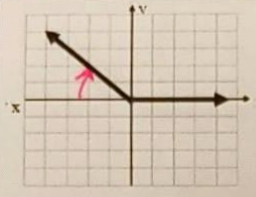
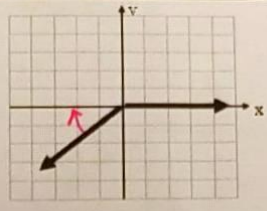
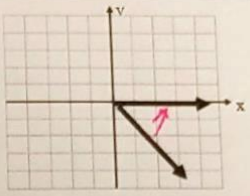
Quadrant	Quadrant 1	Quadrant 2	Quadrant 3	Quadrant 4
Picture:				
Degrees:	Ref $\angle = \theta$	Ref $\angle = 180 - \theta$	Ref $\angle = \theta - 180$	Ref $\angle = 360 - \theta$
Radians:	Ref $\angle = \theta$	Ref $\angle = \pi - \theta$	Ref $\angle = \theta - \pi$	Ref $\angle = 2\pi - \theta$

** If starting angle is Greater than 360° (2π), start by subtracting 360 (2π), from the starting angle until the angle is between 0° and 360° (2π). Then find the reference angle.

** If starting angle is negative, start by adding 360 (2π), from the starting angle until the angle is between 0° and 360° (2π). Then find the reference angle.

For each of the following, find the reference angle θ.

1. $\theta = 57°$ — =57°
2. $\theta = 113°$ — 180-113=67° =67°
3. $\theta = 300°$ — 360-300 =60°
4. $\theta = 280°$ — 360-280=80° =80°
5. $\theta = 100°$ — 180-100=80° =80°
6. $\theta = 420°$ — 420-360=60° =60°
7. $\theta = 340°$ — 360-340 =20°
8. $\theta = 225°$ — 225-180=45° =45°
9. $\theta = 143°$ — 180-143=37° 37°
10. $\theta = 30°$ — =30°
11. $\theta = 120°$ — 180-120= 60°
12. $\theta = 315°$ — 360-315=45° 45°
13. $\theta = 240°$ — 240-180=60° 60°
14. $\theta = -230°$ — -230+360=130 180-130= 50°
15. $\theta = -135° + 360$ — 225 225-180=45° 45
16. $\theta = -60° + 360 = 300$ — 360-300 60°
17. $\theta = \frac{7\pi}{6}$ (210°) — π/6
18. $\theta = \frac{5\pi}{3}$ (300°) — π/3 360-300 60°=π/3
19. $\theta = \frac{\pi}{6}$ = 30° — π/6 30°=π/6
20. $\theta = \frac{5\pi}{4}$ 225 — π/4 225-180 45°=π/4
21. $\theta = -\frac{2\pi}{3}$ -120°+360 =240 240-180 60°=π/3 — π/3
22. $\theta = \frac{-4\pi}{3}$ -240+360 =120 180-120 60°=π/3 — π/3
23. $\theta = \frac{17\pi}{4}$ =765-360-360 =45 — π/4 45°=π/4
24. $\theta = \frac{-11\pi}{6}$ -330+360 30°=π/6 — π/6