Solve each equation in the interval $[0°, 360°)$

Solutions coming soon.

48. $\sin(\theta) = \frac{1}{2}$ 49. $\tan(\theta) = -\frac{\sqrt{3}}{3}$ 50. $\cos(\alpha) = \frac{\sqrt{2}}{2}$ 51. $\sec(\theta) = -2$

52. $\cot(\phi) = \frac{1}{\sqrt{3}}$ 53. $\sin(\theta) = -\frac{\sqrt{3}}{2}$ 54. $\tan(\beta) = -1$ 55. $\csc(\phi) = -\frac{2}{\sqrt{2}}$

oops

48. $\sin(\theta) = \pm\frac{1}{2}$ 49. $\cos(\gamma) = \frac{\sqrt{3}}{2}$ 50. $\sin(\alpha) = -\frac{\sqrt{2}}{2}$ 51. $\tan(\theta) = \pm\sqrt{3}$

(48) $\sin(\theta) = \frac{1}{2}$

* Quad Check: QI, QII
* Ref ∠: $\theta_R = 30°$
* Solve:

QI: $\theta = \boxed{30°}$

QII: ~~x~~

$\theta = 180 - 30 = \boxed{150°}$

(49) $\tan(\theta) = -\frac{\sqrt{3}}{3}$

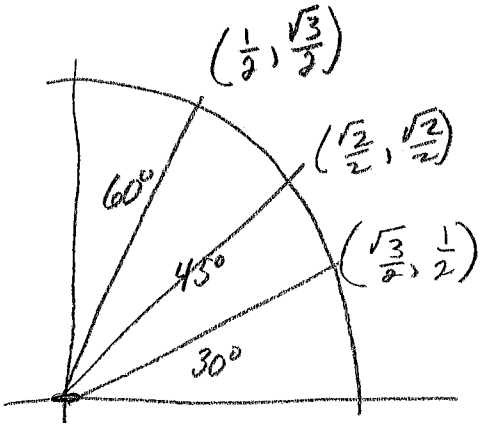
Note: $\frac{\sqrt{3}}{3}$ equals $\frac{1}{\sqrt{3}}$

$\tan(\theta) = -\frac{1}{\sqrt{3}}$

* Quad check: QII QIII
* Ref ∠: $\theta_R = 30°$
* Solve:

QII: $\theta = 180 - 30 = \boxed{150°}$

QIII: $\theta = 360 - 30 = \boxed{330°}$



(50) $\cos(\alpha) = \frac{\sqrt{2}}{2}$

* Quad check: QI QIII
* Ref ∠: $\alpha_R = 45°$
* QI: $\alpha = \boxed{45°}$ QIII: $\alpha = 360 - 45 = \boxed{315°}$

(51) $\sec(\theta) = -2$

* Reciprocal
$\Rightarrow \cos(\theta) = -\frac{1}{2}$
* Quad Check: QII; QIII
* Ref ∠: $\theta_R = 60°$
* Solve:

QII: $\theta = 180 - 60 = \boxed{120°}$

QIII: $\theta = 180 + 60 = \boxed{240°}$

(52) $\cot(\phi) = \frac{1}{\sqrt{3}}$

* Reciprocal
$\Rightarrow \tan(\phi) = \sqrt{3}$
* Quad check:
QI ; QIII
* Ref ∠:
$\phi_R = 60°$
* Solve:
QI: $\phi = \boxed{60°}$
QIII: $\phi = 180+60$
$= \boxed{240°}$

(53) $\sin(\theta) = -\frac{\sqrt{3}}{2}$

* Quad check:
QIII ; QIIII
* Ref ∠:
$\theta_R = 60°$
* Solve:
QIII: $\theta = 180+60$
$= \boxed{240°}$
QIIII: $\theta = 360-60$
$= \boxed{300°}$

(54) $\tan(\beta) = -1$

* Quad check
QII ; QIIII
* Ref ∠:
we want $\sin(\beta) = \cos(\beta)$
$\Rightarrow \beta_R = 45°$
* Solve:
QII: $\beta = 180-45$
$= \boxed{135°}$
QIIII: $\beta = 360-45$
$= \boxed{315°}$

---

(55) $\csc(\phi) = -\frac{2}{\sqrt{2}}$

* Reciprocal:
$\Rightarrow \sin(\phi) = -\frac{\sqrt{2}}{2}$
* Quad Check
QIII ; QIIII
* Ref ∠:
$\phi_R = 45°$
* Solve:
QIII: $\phi = 180+45$
$= \boxed{225°}$
QIIII: $\phi = 360-45$
$= \boxed{315°}$

oops 2

~~(54)~~ (48) $\sin(\theta) = \pm\frac{1}{2}$

* Quad check:
all 4
* Ref ∠:
$\theta_R = 30°$
* Solve:
QI: $\theta = \boxed{30°}$
QII: $\theta = 180-30$
$= \boxed{150°}$
QIII: $\theta = 180+30$
$= \boxed{210°}$
QIIII: $\theta = 360-30$
$= \boxed{330°}$

(49) $\cos(\gamma) = \frac{\sqrt{3}}{2}$

* Quad check:
QI ; QIIII
* Ref ∠:
$\gamma_R = 30°$
* Solve:
QI: $\gamma = 30°$
QIIII: $\gamma = 360-30$
$= \boxed{330°}$

(50) $\sin(\alpha) = -\frac{\sqrt{2}}{2}$

* Quad check:
  QIII ; QIIII
* Ref x:
  $\alpha_R = 45°$
* Solve:
  QIII: $\alpha = 180 + 45°$
  $= \boxed{225°}$
  QIIII: $\alpha = 360 - 45°$
  $= \boxed{315°}$

(51) $\tan(\theta) = \pm\sqrt{3}$

* Quad check:
  all 4.
* REF x:
  $\theta_R = 60°$
* Solve:
  QI: $\theta = \boxed{60°}$
  QII: $\theta = 180 - 60$
  $= \boxed{120°}$
  QIII: $\theta = 180 + 60$
  $= \boxed{240°}$
  QIIII: $\theta = 360 - 60$
  $= \boxed{300°}$