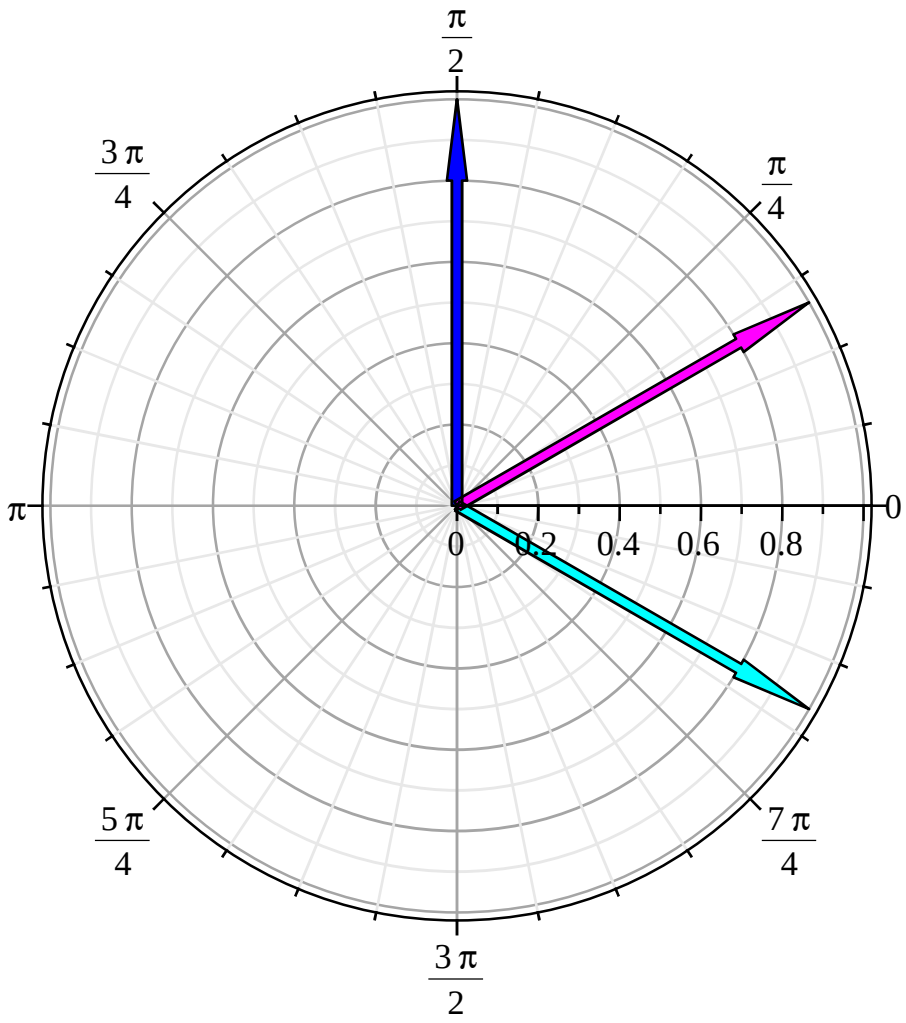
```
> restart;
> interface(warnlevel = 0) :          # Maple 12
> with(plots) :
  with(LinearAlgebra) :
```

Grover's Algorithm

1 out of 4 search

```
> V0 := ⟨ √3/2, 1/2 ⟩ :
  V1 := ⟨ √3/2, -1/2 ⟩ :
  V2 := ⟨0, 1⟩ :
  a := arrow(V0, color = magenta, width = 0.025) :
  b := arrow(V1, color = cyan, width = 0.025) :
  c := arrow(V2, color = blue, width = 0.025) :
  display([a, b, c], axiscoordinates = polar);
  θ := evalf( ( 180/π · cos^(-1)(DotProduct(V0, V1)) ) );
```



θ := 60.

(1)

1 out of 8 search

> $V0 := \left\langle \frac{\sqrt{7}}{2\sqrt{2}}, \frac{1}{2\sqrt{2}} \right\rangle : V1 := \left\langle \frac{\sqrt{7}}{2\sqrt{2}}, -\frac{1}{2\sqrt{2}} \right\rangle :$

$V2 := \left\langle \frac{\sqrt{7}}{4\sqrt{2}}, \frac{5}{4\sqrt{2}} \right\rangle : V3 := \left\langle \frac{\sqrt{7}}{4\sqrt{2}}, -\frac{5}{4\sqrt{2}} \right\rangle :$

$V4 := \left\langle -\frac{\sqrt{7}}{8\sqrt{2}}, \frac{11}{8\sqrt{2}} \right\rangle :$

$a := arrow(V0, color = magenta, width = 0.025) :$

$b := arrow(V1, color = yellow, width = 0.025) :$

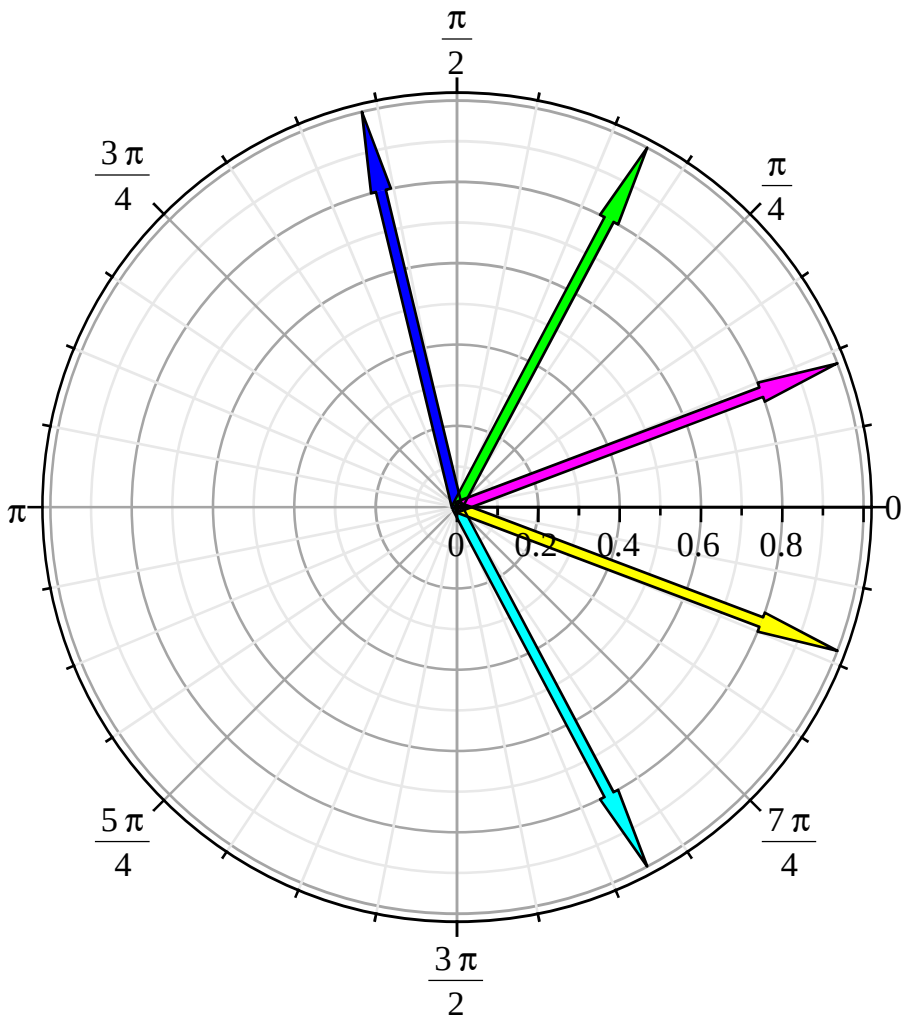
$c := arrow(V2, color = green, width = 0.025) :$

$d := arrow(V3, color = cyan, width = 0.025) :$

$e := arrow(V4, color = blue, width = 0.025) :$

$display([a, b, c, d, e], axiscoordinates = polar);$

$\theta := evalf\left(\left(\frac{180}{\pi} \cdot \cos^{-1}(DotProduct(V0, V2))\right)\right);$



$\theta := 41.40962210$ **(2)**