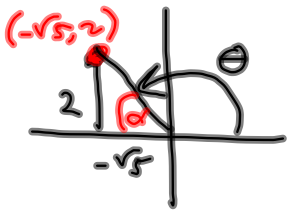
Convert from polar to rectangular coords:
Round to two decimal places in final answers

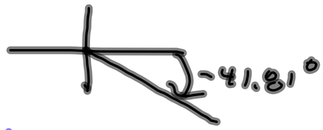
$(-\sqrt{5}, 2)$ $\quad \arctan\left(-\frac{2}{\sqrt{5}}\right)$



$\theta \approx -41.81^\circ$

$\approx -.73$

```
tan⁻¹(-2/√(5))
     -41.8103149
Ans*π/180
     -.7297276562
```



QII & QIII points require interpretation. Add 180° or π radians to get those.

θ

So $\alpha \approx 41.81^\circ$

So $\theta \approx 180^\circ - 41.81^\circ =$

$\approx \pi - .7297276562$

$\approx$

```
     -41.8103149
Ans*π/180
     -.7297276562
Ans+π
     2.411864997
Ans*180/π
     138.1896851
```

$\tan^{-1}(*) \approx$ degrees QIV

Radians

Interpret to find right quadrant (QII)

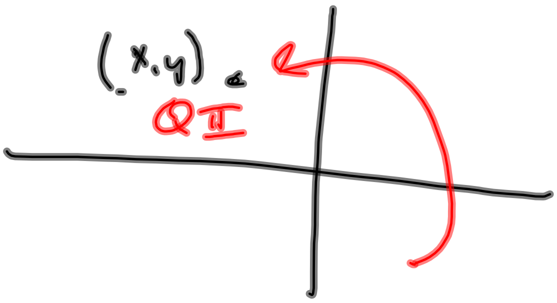
Convert to degrees

$\theta \approx 2.41$ rad $\approx 138.19^\circ$

$r = \sqrt{x^2+y^2} = \sqrt{(-\sqrt{5})^2 + 2^2} = \sqrt{5+4} = \sqrt{9} = 3$

$(r, \theta) \approx (3, 138.19^\circ) \approx (3, 2.41)$

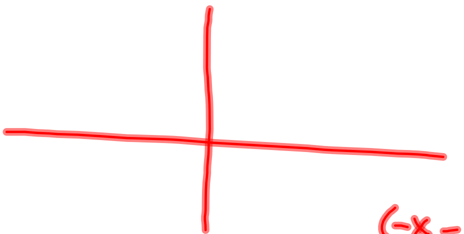
May 2-8:09 AM



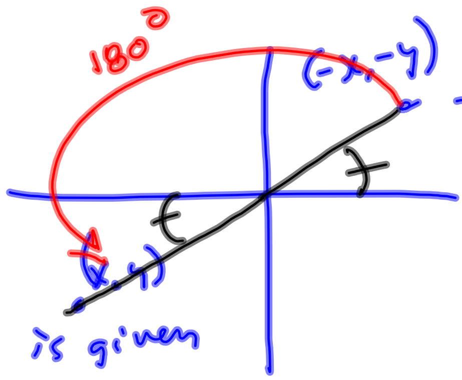
Calc. thinks its $\overline{\underline{QIV}}$.

$\tan^{-1}(\quad)$

Add 180° to calc. ans.

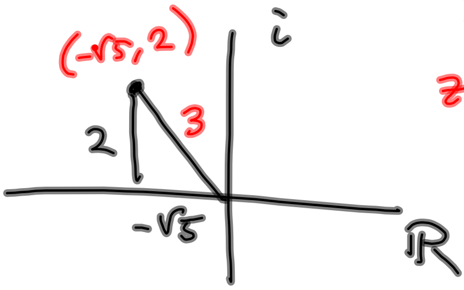


(-x,-y) ADD 180° to get (x,y)



$\tan^{-1}$ sees this

Convert $z = -\sqrt{5} + 2i$ to trig. form



Round to two places

$z = 3(\cos 138.19° + i \sin 138.19°)$

OR $3(\cos 2.41 + i \sin 2.41)$

work already done

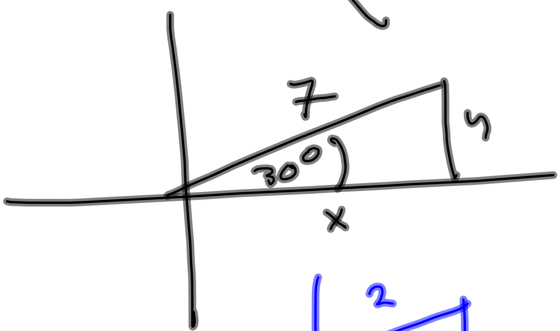
Same deal: $\tan^{-1}$ to find angle.

Interpret carefully, because calculator only returns angles between $-\frac{\pi}{2}$ & $\frac{\pi}{2}$ or $-90°$ & $+90°$. Basically add 180° if z is in QII or QIII and calculator says QIV or QI, respectively

Convert to rect. form from polar form.

$\left(7, \frac{\pi}{6}\right) \left(= (7, 30^\circ)\right)$

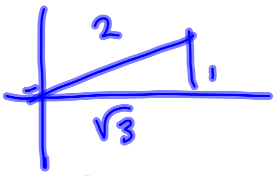
$\boxed{y = r\sin\theta}$



$\frac{y}{7} = \sin 30^\circ$

$y = 7\sin 30^\circ$

$= 7\left(\frac{1}{2}\right) = \frac{7}{2}$



$\frac{x}{7} = \cos 30^\circ$

$x = 7\cos 30^\circ$

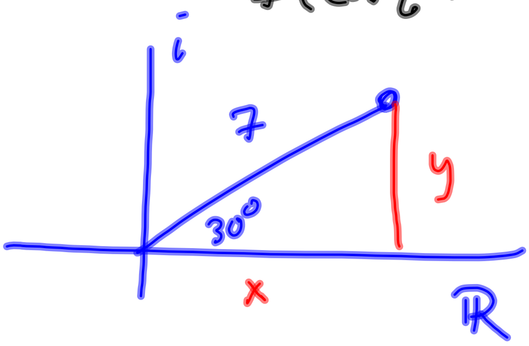
$= 7\cdot\frac{\sqrt{3}}{2} = \boxed{\frac{7\sqrt{3}}{2}}$

$(x, y) = \left(\frac{7\sqrt{3}}{2}, \frac{7}{2}\right)$

Convert from trigonometric form to standard form:

$$7(\cos 30^\circ + i\sin 30^\circ)$$

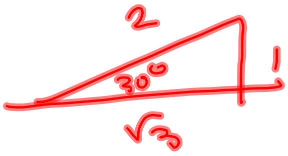
$$7\left(\cos\frac{\pi}{6} + i\sin\frac{\pi}{6}\right)$$



$$\frac{y}{7} = \sin 30^\circ$$

$$y = 7\sin 30^\circ$$

$$= \frac{7}{2}$$



$$x = 7\cos 30^\circ$$

$$= 7\cdot\frac{\sqrt{3}}{2}$$

$$= \frac{7\sqrt{3}}{2}$$

$$z = \frac{7\sqrt{3}}{2} + \frac{7}{2}i$$

Convert from polar form to ~~algebraic~~

rectangular form.

6.7 Convert from polar coordinates to Rectangular or Cartesian Coordinates.

$$r = 2\cos\theta \qquad\qquad r = \sec\theta$$

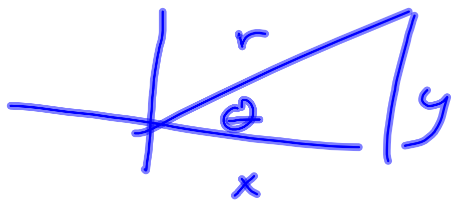
$$\sqrt{x^2+y^2} = 2$$

$\boxed{B}$

$$\boxed{\frac{x}{\sqrt{x^2+y^2}}}$$

Interpret this as a geometric object

$\sqrt{x^2+y^2}$



$$\sqrt{x^2+y^2} = \frac{2x}{\sqrt{x^2+y^2}}$$

$$\sqrt{x^2+y^2}\,\sqrt{x^2+y^2} = 2x$$

$$x^2+y^2 = 2x$$

$$x^2-2x+y^2=0$$

$$x^2-2x+1^2+y^2=1^2$$

$$(x-1)^2+y^2=1$$

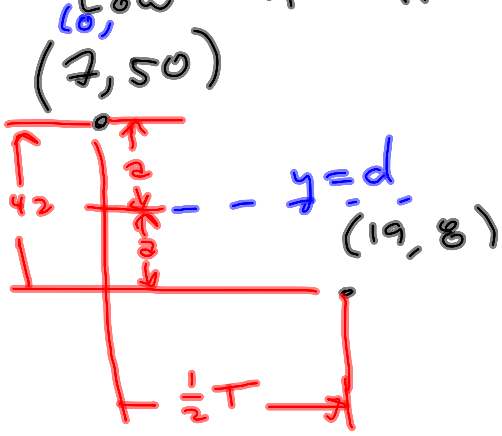
circle of radius 1 centerd at $(1,0)$

$$(x-h)^2+(y-k)^2=r^2$$

6:00 – 7:30 pm Sat. @ Outriders
over by Wells Fargo on 59th Ave
That little mall.

High tide is 50 ft @ 7 am 0700

Low " " 8 ft @ 7 pm 1900



$= 12$

$a\cos(b(x-c))+d$

a: $42 = 2a$

$a = 21$

c: start at $x=7$

$c = 7$

b: $T = 24$

$bx = 2\pi$ when $x = 24$

$24b = 2\pi$

$b = \frac{2\pi}{24} = \frac{\pi}{12} = b$

$x - c = 0$ when $x = 7$,

so $c = 7$

d: $\frac{50+8}{2} = 29 = d$

Chris

$y = 21\cos\left(\frac{\pi}{12}(x-7)\right) + 29$

$z = 2(\cos \pi + i \sin \frac{\pi}{4})$

Find the 4^{th} roots

$r = 2 \quad r^{\frac{1}{4}} = 2^{\frac{1}{4}} \quad z^{\frac{1}{4}}$

$\frac{\pi}{4} = \frac{\pi}{4} = 45^\circ$

$\frac{2\pi}{4} = \frac{\pi}{2} = 90^\circ$

$2^{\frac{1}{4}}$

$$\left\{\begin{array}{l} 2^{\frac{1}{4}}(\cos(45^\circ) + i\sin(45^\circ)) \\ 2^{\frac{1}{4}}(\cos(135^\circ) + i\sin(135^\circ)) \\ 2^{\frac{1}{4}}(\cos(225^\circ) + i\sin(225^\circ)) \\ 2^{\frac{1}{4}}(\cos(315^\circ) + i\sin 315^\circ) \end{array}\right.$$

$* \quad 2^{\frac{1}{4}}(\cos(\underline{405}^\circ) + i\sin(\underline{405}^\circ))$