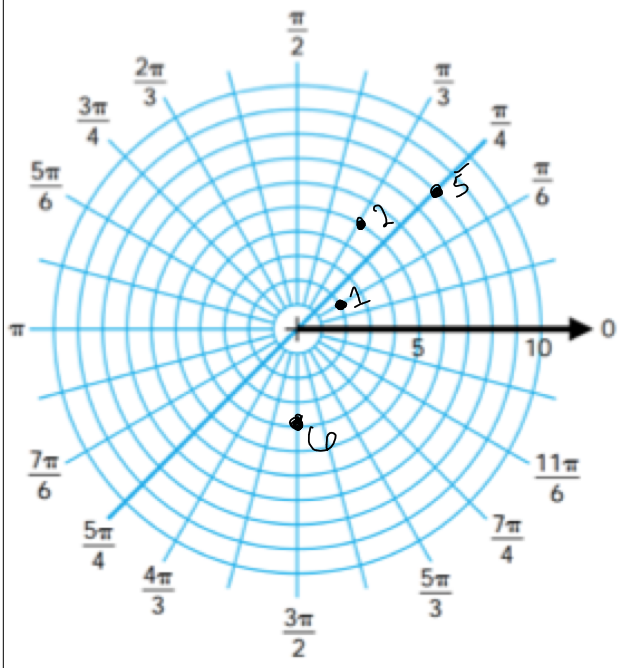
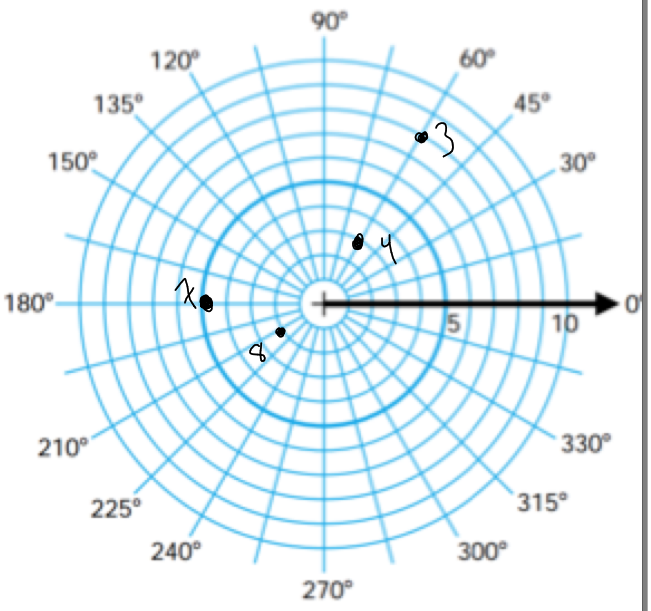
13.2 Polar Coordinates

PRACTICE

Directions: Plot each point and label it.





1) $\left(2,\frac{\pi}{6}\right)$	2) $\left(-5,\frac{4\pi}{3}\right)$	3) $(-8,240°)$	4) $(-3,-120°)$
5) $\left(7,-\frac{7\pi}{4}\right)$	6) $\left(-4,-\frac{3\pi}{2}\right)$	7) $(5,540°)$	8) $(2,-150°)$

Directions: Rename the following point in two different ways, at least one with the opposite radius. Keep radians with radian answers, and degree with degree answers. (You could have literally infinitely many ways)

9) $\left(6,\frac{7\pi}{4}\right)$ $\left(-6,\frac{3\pi}{4}\right)$ $\left(6,-\frac{\pi}{4}\right)$	10) $\left(-2,-\frac{5\pi}{3}\right)$ $\left(-2,\frac{\pi}{3}\right)$ $\left(2,\frac{4\pi}{3}\right)$	11) $(-4,150°)$ $(4,330°)$ $(4,-30°)$	12) $(7,-270°)$ $(7,90°)$ $(-7,270°)$

Directions: Convert the following from Polar to Rectangular (round to 3 decimal places).

13) $\left(-5,\frac{3\pi}{4}\right)$ $x=-5\cos\left(\frac{3\pi}{4}\right)$ $y=-5\sin\left(\frac{3\pi}{4}\right)$ $(3.54,-3.54)$	14) $\left(-8,-\frac{7\pi}{6}\right)$ $x=-8\cos\left(\frac{-7\pi}{6}\right)$ $y=-8\sin\left(\frac{-7\pi}{6}\right)$ $(6.93,-4)$	15) $(4,330°)$ $x=4\cos 330$ $y=4\sin 330$ $(3.46,-2)$	16) $(7,-45°)$ $x=7\cos -45$ $y=7\sin -45$ $(4.95,-4.95)$

Directions: Convert the following from Rectangular to Polar where $r \geq 0$, and $0° \leq \theta \leq 360°$

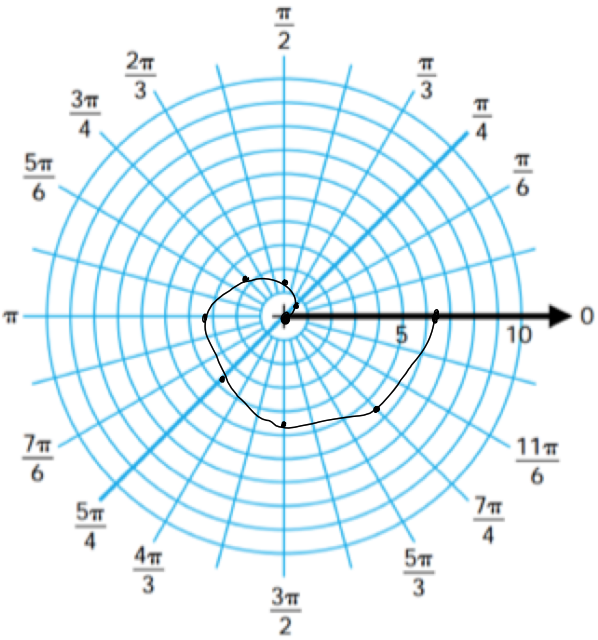
17) (5, 8) $r^2=5^2+8^2$ $r=\sqrt{89}$ $r=9.4$ $\tan\theta=\frac{8}{5}$ $\theta=57.99°$ $(9.4, 57.99°)$	18) (-4, 1) $r^2=(-4)^2+1^2$ $r=\sqrt{17}$ $r=4.1$ $\tan\theta=\frac{1}{-4}$ $\theta=-14.0°$ $180-14=166$ $(4.1, 166°)$	19) (10, -3) $r^2=10^2+(-3)^2$ $r=\sqrt{109}$ $r=10.4$ $\tan\theta=\frac{-3}{10}$ $\theta=-16.70$ $360-16.7=343.3$ $(10.4, 343.3°)$	20) (-5,-12) $r^2=(-5)^2+(-12)^2$ $r=\sqrt{169}$ $r=13$ $\tan\theta=\frac{-12}{-5}$ $\theta=67.38$ $180+67.38=247.38$ $(13, 247.38)$

Directions: Complete the table and plot the graph. (round to 2 decimals)

21) $r = \theta$

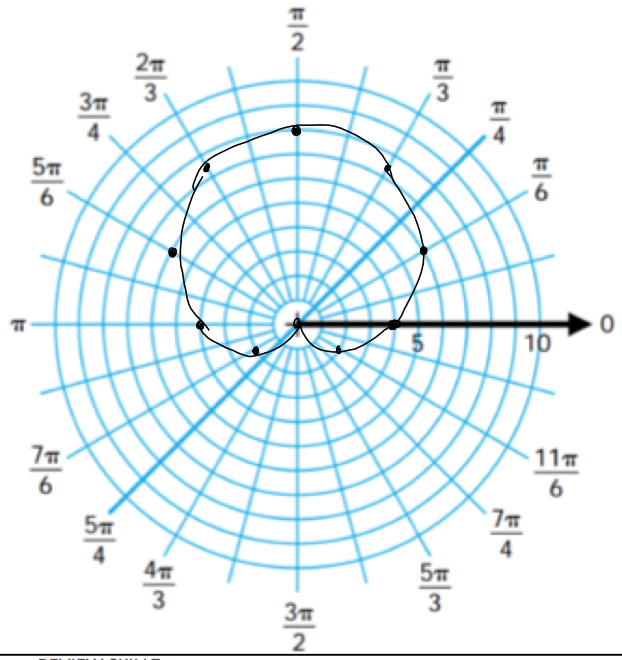
θ	r
0	0
$\frac{\pi}{4}$	0.79
$\frac{\pi}{2}$	1.57
$\frac{3\pi}{4}$	2.36
π	3.14
$\frac{5\pi}{4}$	3.93
$\frac{3\pi}{2}$	4.71
$\frac{7\pi}{4}$	5.50
2π	6.28

IT SHOULD BE MORE CURVED - SORRY!



22) $r = 4 + 4\sin\theta$

θ	r
$\frac{3\pi}{2}$	0
$\frac{11\pi}{6}$	2
0	4
$\frac{\pi}{6}$	6
$\frac{\pi}{3}$	7.46
$\frac{\pi}{2}$	8
$\frac{2\pi}{3}$	7.46
$\frac{5\pi}{6}$	6
π	4
$\frac{7\pi}{6}$	2



REVIEW SKILLZ

Find the next two terms and describe how the sequence is derived.

1) 1, 1, 2, 3, 5, 8, 13

Add the previous 2 Terms.

2) 1, 5, 12, 22, 35, 51, 70

4 7 10 13 16 19

3 3 3 3 3

GO 2 LEVELS

Add 3 TO FIRST LEVEL Then Add THAT TO ORIGINAL

3) 1, 6, 15, 28, 45, 66, 91, 120

5 9 13 17 21 25 29

4 4 4 4 4 4

ADD 4 TO 1ST DIFFERENCE. THEN ADD THAT TO ORIGINAL

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