Trig 9.1

CCW (3, 40°)

Graph points in polar coordinate form
Graph polar equations
Determine distance between 2 polar coordinates

(3 -320°)

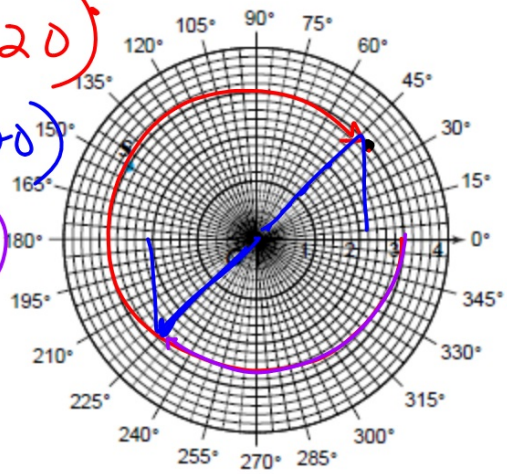
(-3, 220°)

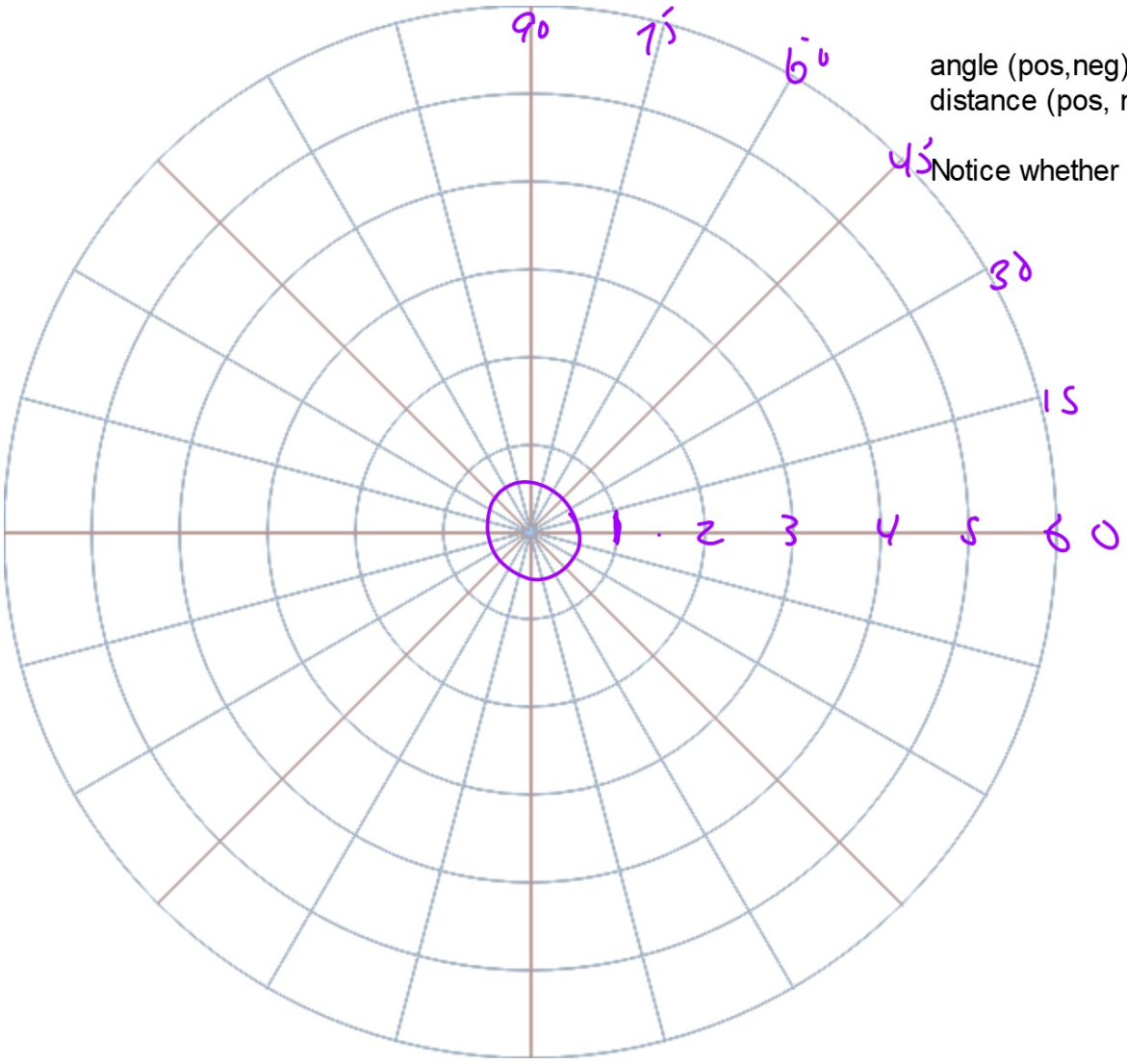
(-3 -140°)

r (r, θ)

Θ

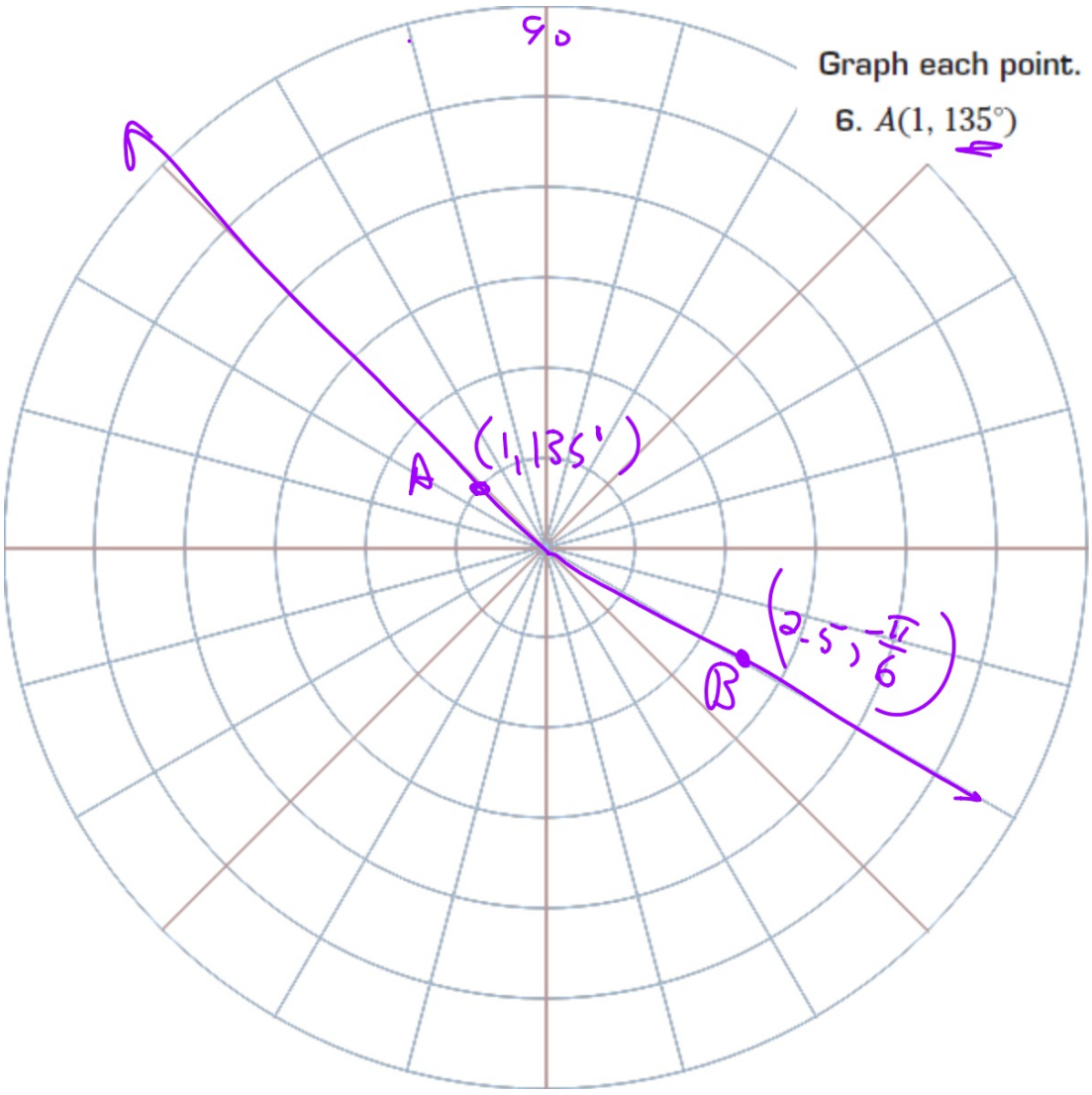
Law of cosines





angle (pos,neg)
distance (pos, neg)

Notice whether r=1 or r=0.5

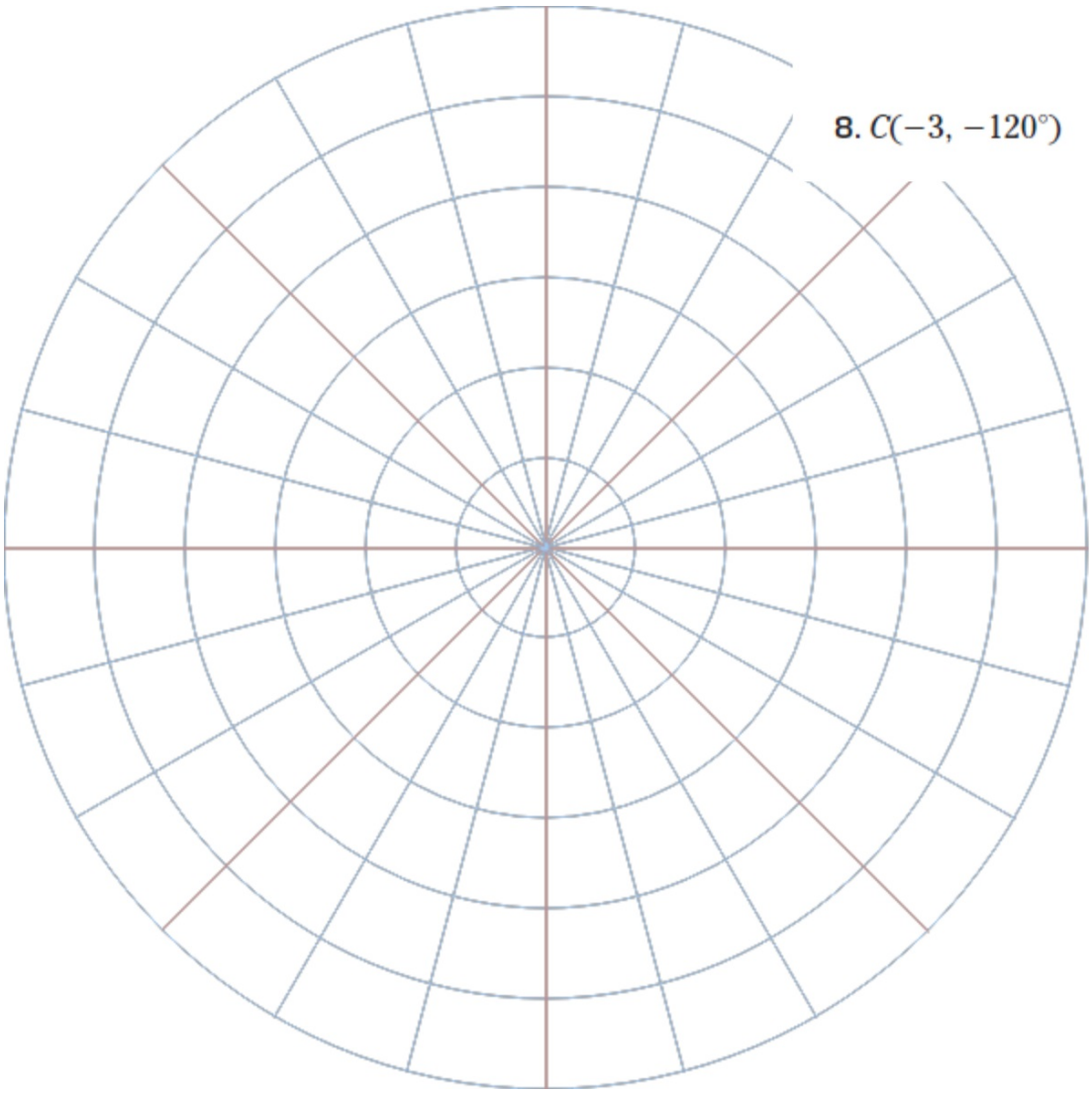


Graph each point.

6. $A(1, 135°)$

7. $B\left(2.5, -\frac{\pi}{6}\right)$

-30



8. $C(-3, -120°)$

9. $D\left(-2, \frac{13\pi}{6}\right)$

Related to Law of cosines

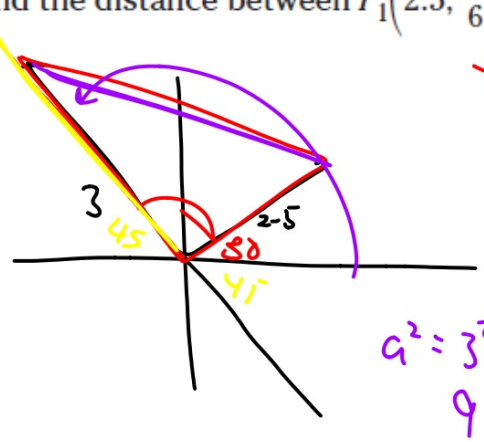
Distance Formula in Polar Plane	If $P_1(r_1, \theta_1)$ and $P_2(r_2, \theta_2)$ are two points in the polar plane, then $P_1P_2 = \sqrt{r_1^2 + r_2^2 - 2r_1r_2\cos(\theta_2 - \theta_1)}$

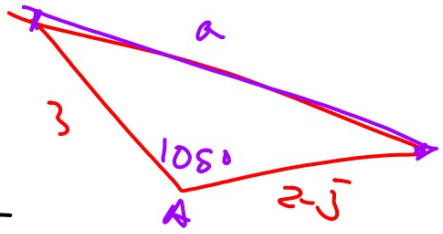
Could memorize... but LOC will do it...

Law of cosines

(2.5, 30°) (−3, −45°)

14. Find the distance between $P_1\left(2.5, \frac{\pi}{6}\right)$ and $P_2\left(-3, -\frac{\pi}{4}\right)$ on the polar plane.



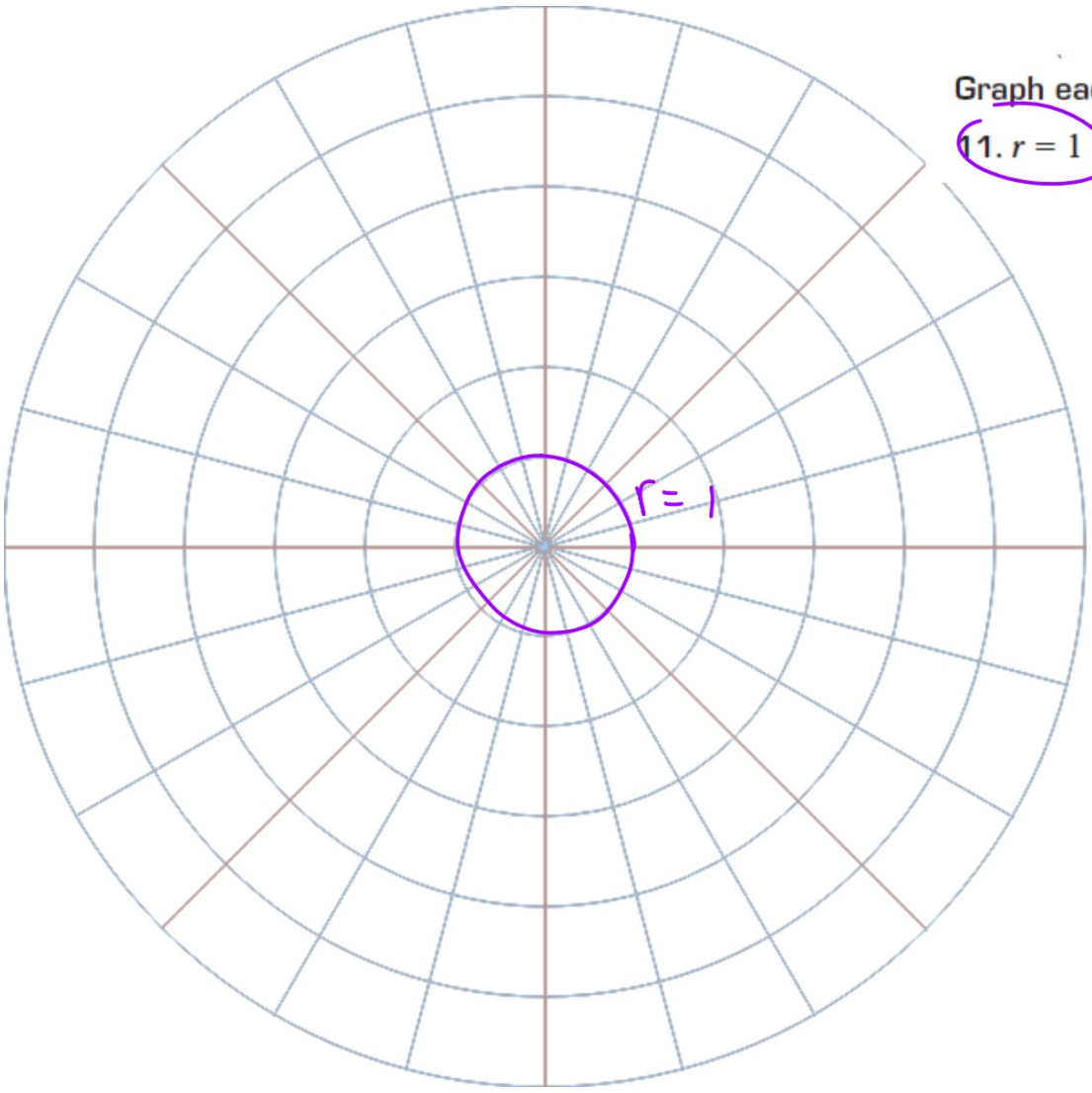


$a^2 = 3^2 + 2.5^2 - (2 \cdot 3 \cdot 2.5 \cos 105)$

$9 + 6.25 - (-3.882)$

$= 403.4\beta$

20.1

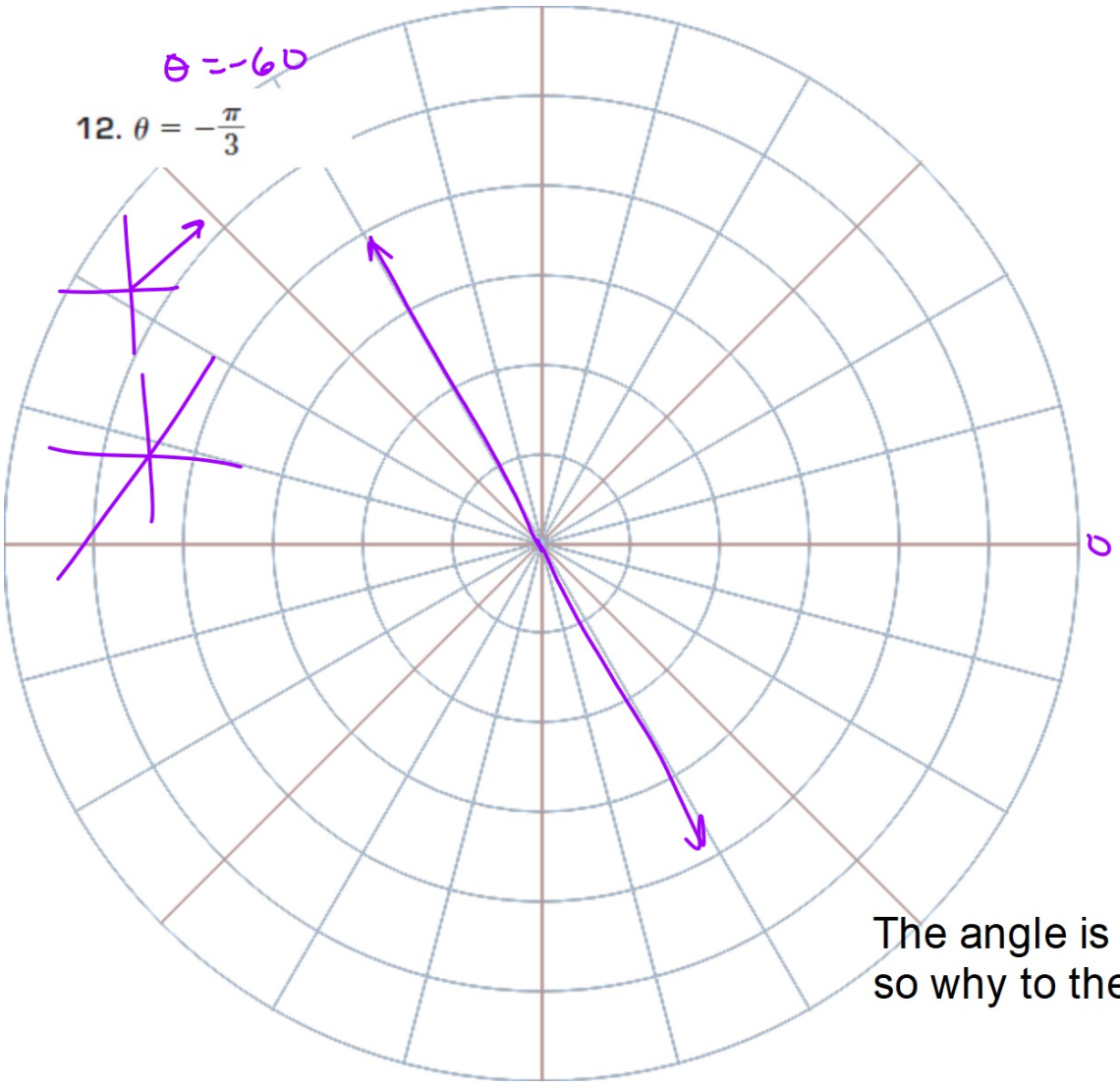


Graph each polar equation.

11. $r = 1$

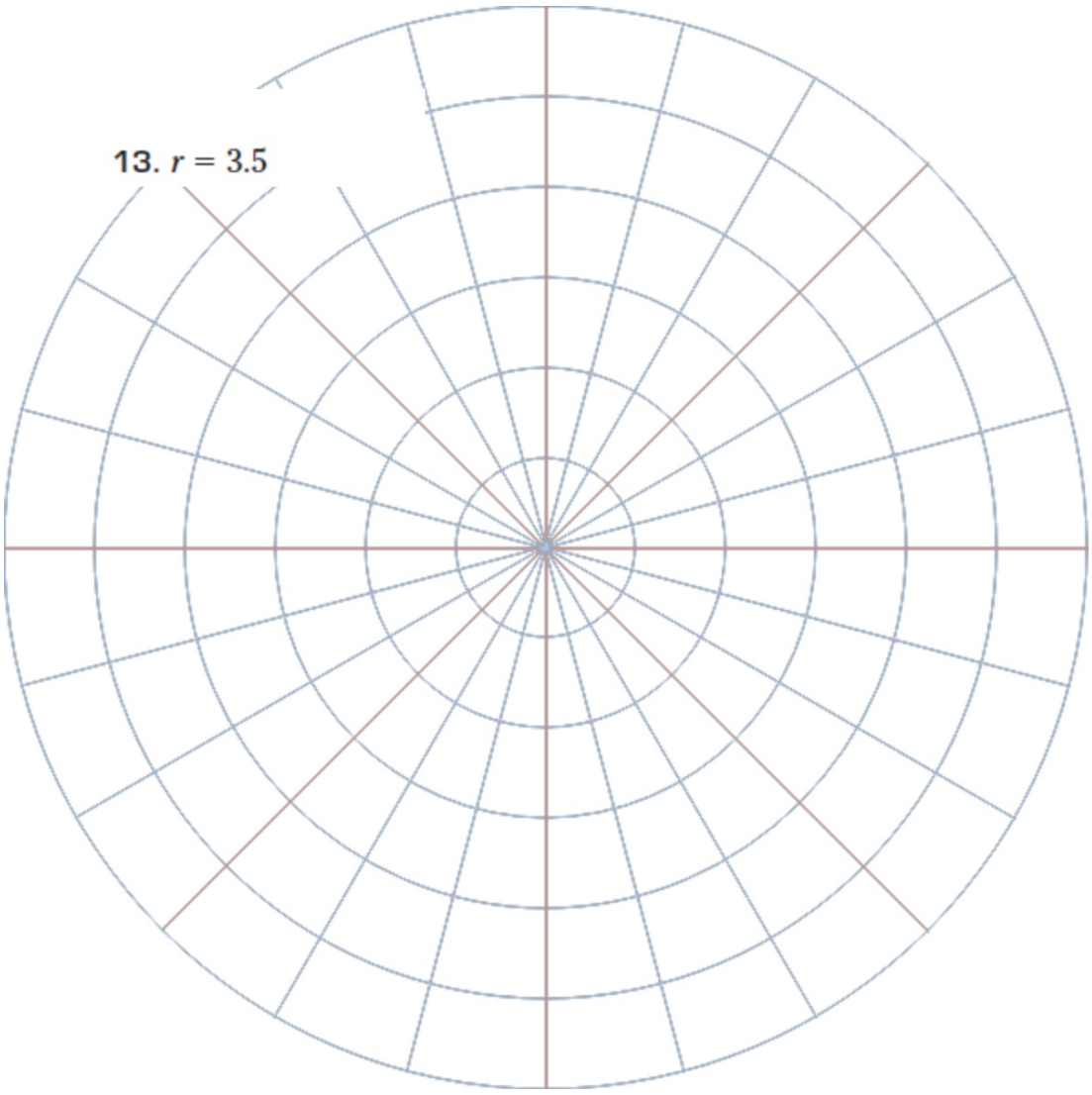
$\theta = -60$

12. $\theta = -\frac{\pi}{3}$



The angle is actually a ray...
so why to they extend it?

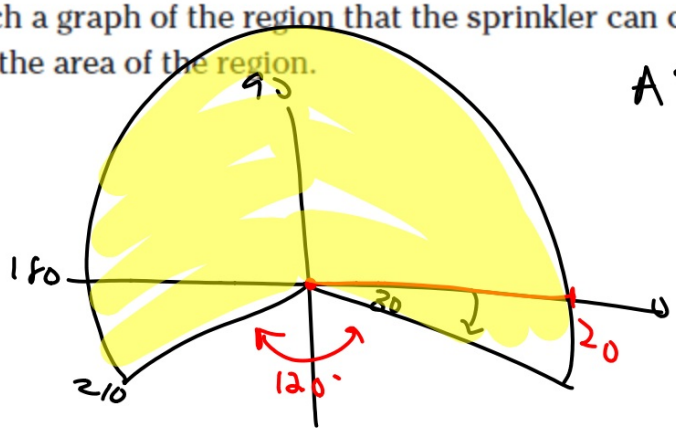
13. $r = 3.5$



15. **Gardening** A lawn sprinkler can cover the part of a circular region determined by the polar inequalities $-30° \le \theta \le 210°$ and $0 \le r \le 20$, where r is measured in feet.

a. Sketch a graph of the region that the sprinkler can cover.

b. Find the area of the region.



$A = \left(\frac{240}{360}\right)\pi \cdot 20^2$

837.76 ft^2

bap
bae

$\log_{10} 100 = 2$

$10^2 = 100$

$(x+3)(x-2) = 3$

$\log_{10}(x+3) + \log_{10}(x-2) = \log 3$

$\log_{10}(x+3)(x-2) = 3$

$100 = x^2 + x - 6$