

Show all your work for full credit. Unsupported answers = reduced points.

1. Convert the polar coordinate points to rectangular coordinates. Round to 3 decimal places when necessary.

(a)  $P\left(-6, \frac{4\pi}{3}\right)$

(b)  $P(2.5, -4)$

[      /2]

2. Convert the rectangular coordinate point to polar coordinates. Round to 3 decimal places when necessary. Use radian measure angles.

(a)  $R\left(-6, 6\sqrt{3}\right)$

(b)  $R(-3.5, -2)$

[      /2]

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3. Convert the polar equation to rectangular coordinates and identify the function:  $r = \frac{3}{1-\sin(\theta)}$ .

[      /2]

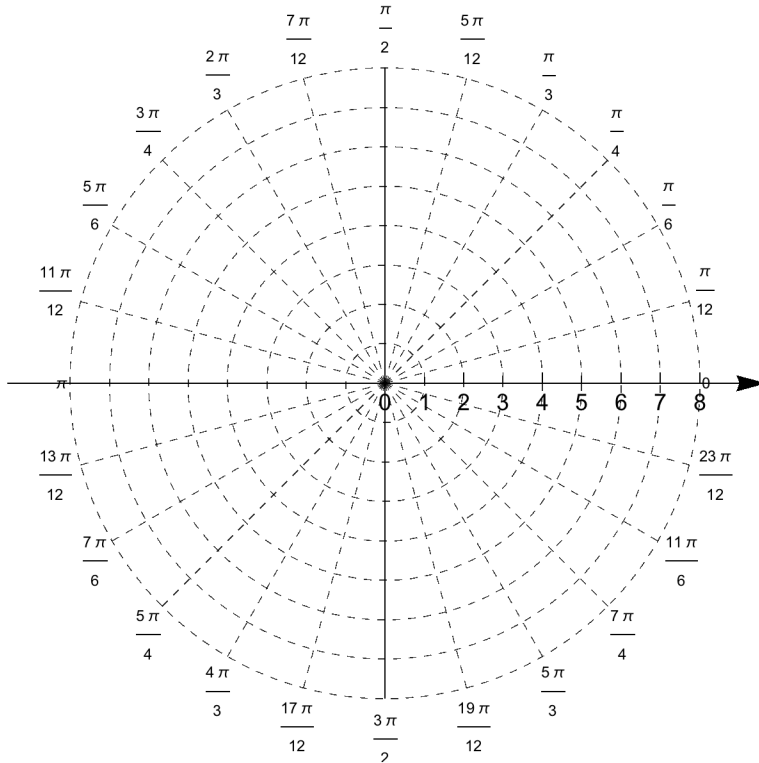
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4. Identify and describe the graph of  $(x^2 + y^2 - 5y)^2 = 4x^2 + 4y^2$  by converting it into polar coordinates.

[      /3]

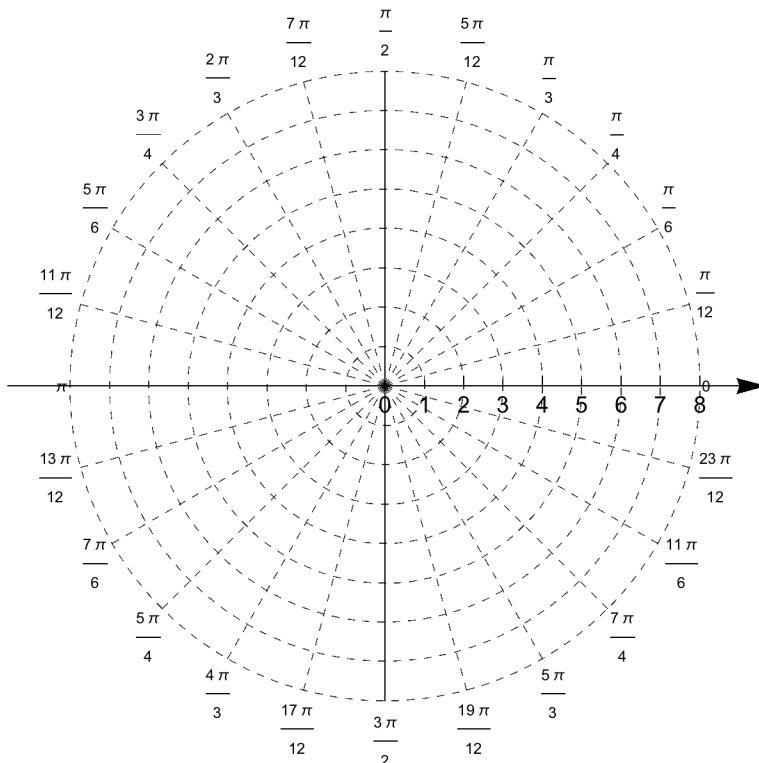
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5. Make an **accurate** sketch of the function creating a table of values from 0 to  $2\pi$ .  
 $r = 3 - 5 \cos(\theta)$



[ /3]

6. Make an **accurate** sketch of the function creating a table of values from 0 to  $\pi$ .  
 $r = 7 \sin(3\theta)$



[ /3]