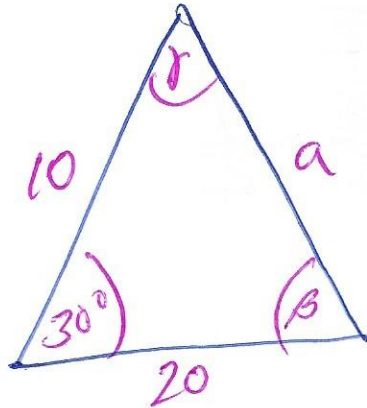


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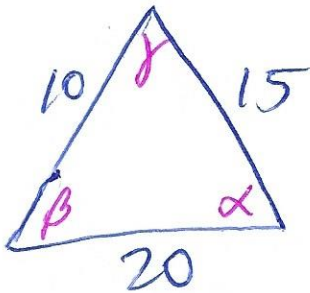
#5



$$a^2 = 10^2 + 20^2 - 2(10)(20)\cos(30^\circ)$$

$$\Rightarrow \frac{\sin(30^\circ)}{a} = \frac{\sin(\beta)}{10} = \frac{\sin(\gamma)}{20}$$

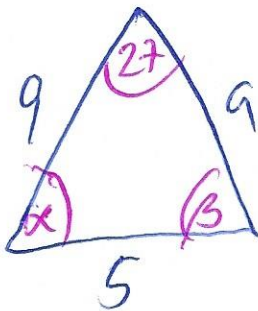
#6



$$10^2 = 20^2 + 15^2 - 2(20)(15)\cos(\alpha)$$

$$\frac{\sin(\alpha)}{10} = \frac{\sin(\beta)}{15} = \frac{\sin(\gamma)}{20}$$

#7

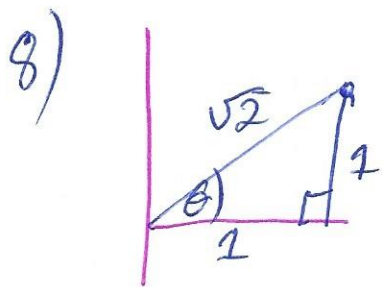


$$\frac{\sin(27^\circ)}{5} = \frac{\sin(\beta)}{9}$$

$$\Rightarrow \alpha = 180^\circ - 27^\circ - \beta$$

$$\frac{\sin(\alpha)}{a} = \frac{\sin(27^\circ)}{5}$$

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$$1^2 + 1^2 = c^2$$
$$\Rightarrow 2 = c^2, c = \sqrt{2}$$

$$\sin(\theta) = \left(\frac{1}{\sqrt{2}}\right) \frac{\sqrt{2}}{2} = \frac{1}{2}$$

$$\theta = \frac{\pi}{4}$$

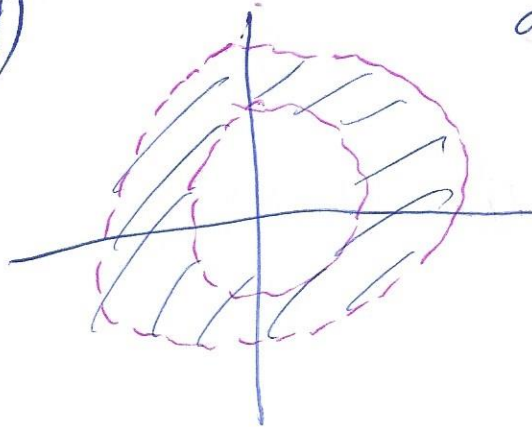
2)  $y = x - 1$

$$\Rightarrow r \sin(\theta) = r \cos(\theta) - 1$$

3)  $r = -5 \sec(\theta) = -5 \left( \frac{1}{\cos(\theta)} \right)$

$$\Rightarrow r \cos \theta = -5, \text{ so } x = -5$$

4)



a)  $1 < r < 2$

$r > 1$ , and  $r < 2$

$$\Rightarrow 1 < r < 2$$

$$1 < r^2 < 4$$

$$1 < x^2 + y^2 < 4$$

Note:  $r^2 = x^2 + y^2$

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5)  $r^2 = 4\cos(\theta)$

check for x-axis symmetry

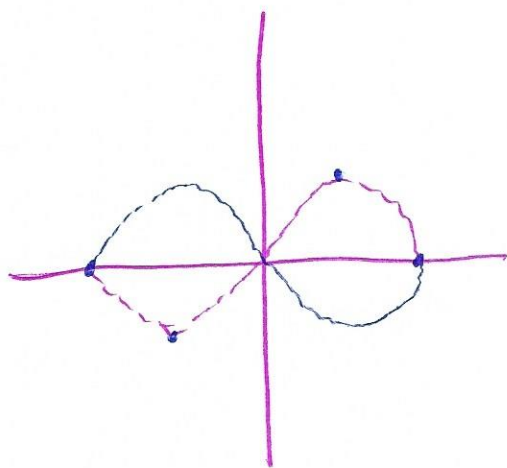
$$\Rightarrow r^2 = 4\cos(-\theta) = 4\cos(\theta)$$

check for y-axis symmetry

$$\Rightarrow (-r)^2 = 4\cos(\theta)$$
$$r^2 = 4\cos(\theta)$$

check for origin symmetry

$$\Rightarrow (-r)^2 = 4\cos(\theta)$$
$$r^2 = 4\cos(\theta)$$



$$r^2 = a^2 \cos(2\theta)$$

r	$\theta$
2	0
	$\pi/6$
$\sqrt{2}/2$	$\pi/4$
	$\pi/3$
	$\pi/2$

$y = \sin(x)$   
 The graph of  $y = \sin(x)$  is a periodic wave oscillating between  $y = -1$  and  $y = 1$ .  
 The period of the function is  $2\pi$ .  
 The graph passes through the origin  $(0, 0)$ .

$y = \cos(x)$   
 The graph of  $y = \cos(x)$  is a periodic wave oscillating between  $y = -1$  and  $y = 1$ .  
 The period of the function is  $2\pi$ .  
 The graph passes through the point  $(0, 1)$ .



$y = \tan(x)$   
 The graph of  $y = \tan(x)$  consists of repeating U-shaped curves that approach vertical asymptotes at  $x = \frac{\pi}{2} + k\pi$ .