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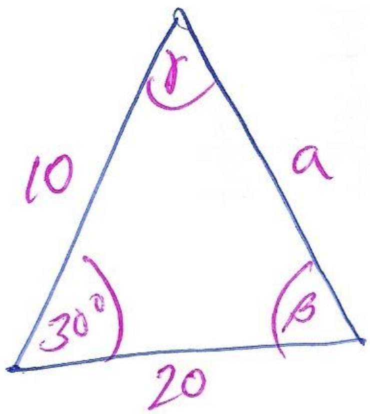
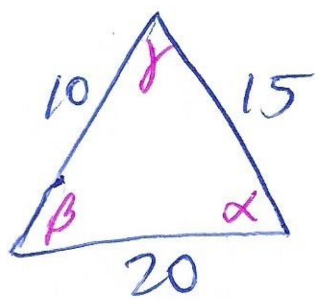
#5



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

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

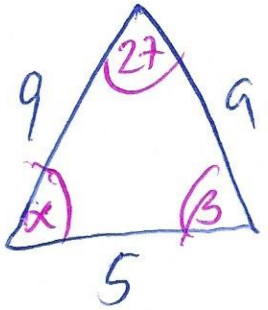
#6



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

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

#7



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

$$\Rightarrow \alpha = 180° - 27° - \beta$$

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

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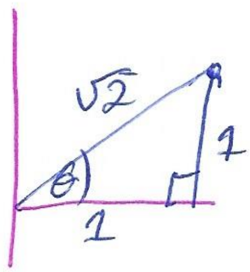
8)



$1^2+1^2=c^2$

$\Rightarrow 2=c^2,\quad c=\sqrt{2}$

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

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

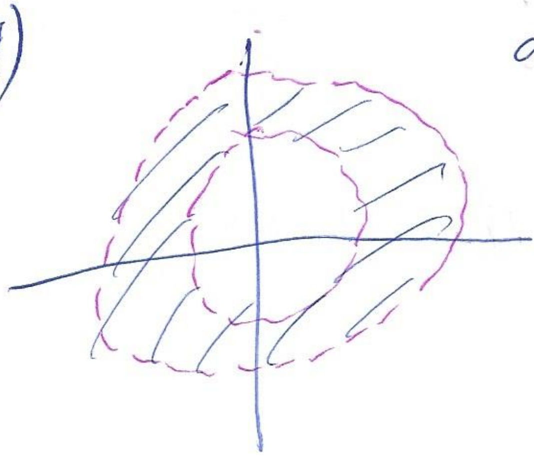
2) $y=x-1$

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

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

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

4)



a) $1<r<2$

$r>1, \text{ and } r<2$

$\Rightarrow 1<r<2$

$1<r^2<4$

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

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

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

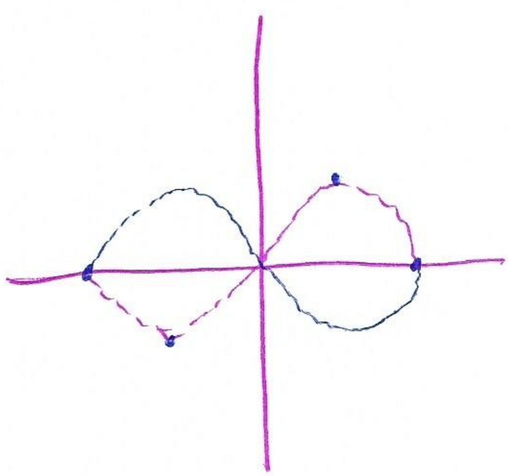
$r^2 = 4\cos(\theta)$

check for origin symmetry

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

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

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



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