微積分A下(統計系)預習測驗 #12

姓名:_____ 系級:_____ 學號_____

預習第16章第4節(pp. 1040-1043), 然後回答下列問題

1. The polar coordinates (r, θ) of a point are related to the rectangular coordinates (x, y) by the equations (page 1040)

   $$\boxed{}$$

2. If f is continuous on a polar rectangle R given by $0 \le a \le r \le b, \quad \alpha \le \theta \le \beta$, where $0 \le \beta - \alpha \le 2\pi$, then (page 1041)

   $$\iint_R f(x, y)\, dA = \boxed{}$$

3. If f is continuous on a polar region D given by $\alpha \le \theta \le \beta, \quad r_1(\theta) \le r \le r_2(\theta)$, then (page 1042)

   $$\iint_R f(x, y)\, dA = \boxed{}$$

4. Sketch the graph of the polar equation $r = \cos 2\theta$.

   (a) Fill in all blanks in the following table.

θ	0	$\pm\frac{\pi}{12}$	$\pm\frac{\pi}{8}$	$\pm\frac{\pi}{6}$	$\pm\frac{\pi}{4}$	$\pm\frac{\pi}{3}$	$\pm\frac{3\pi}{8}$	$\pm\frac{5\pi}{12}$	$\pm\frac{\pi}{2}$
2θ	0								
$r = \cos 2\theta$	1								
θ	0	$\pm\frac{7\pi}{12}$	$\pm\frac{5\pi}{8}$	$\pm\frac{2\pi}{3}$	$\pm\frac{3\pi}{4}$	$\pm\frac{5\pi}{6}$	$\pm\frac{7\pi}{8}$	$\pm\frac{11\pi}{12}$	$\pm\pi$
2θ	0								
$r = \cos 2\theta$	1								

   (b) Plot all these points (r, θ) and sketch the graph of the polar equation $r = \cos 2\theta$.