

Math2210 Midterm 3 Review Problems -

Textbook Even Answers

**Chapter 13 Review (pg 728-729)**

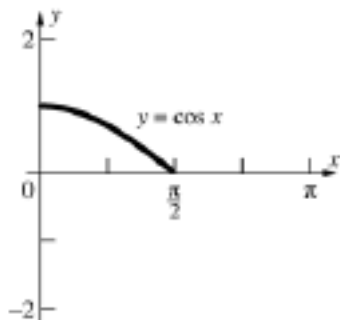
Concepts Test Problems

2. F, 4. T, 14. F, 16. T

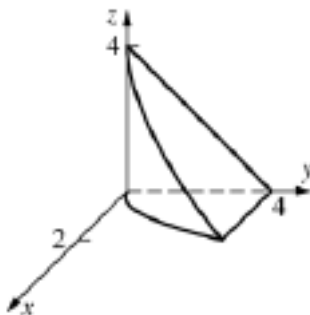
Sample Test Problems

2. 0, 4.  $-\pi/2$

6.  $\int_0^{\pi/2} \int_0^{\cos x} f(x, y) dy dx$



8.  $\int_0^4 \int_0^{4-z} \int_0^{\sqrt{y}} f(x, y, z) dx dy dz$



10.  $5\pi/4$  12.  $2\pi \ln(3/2)$  16. a.  $9\pi$  b.  $8\pi/5$  20.  $3\pi/2$

**Chapter 14 Review (pg 773-774)**

Concepts Test Problems #2 F

Sample Test Problems #

2.  $\text{div } \mathbf{F} = 2yz - 6y + 2y^2$ ,  $\text{curl } \mathbf{F} = \langle 4yz, 2xy, -2xy \rangle$ ,  $\text{grad}(\text{div } \mathbf{F}) = \langle 0, 2z - 6 + 4y, 2y \rangle$ ,  $\text{div}(\text{curl } \mathbf{F}) = 0$

4. a.  $F(x,y) = x^2y + xy \sin y + C$  b.  $f(x,y,z) = xyz + e^{-x} + e^y + C$

6.

$M_x = 2y = N_y$  so the integral is independent of the path. Find any function  $f(x, y)$  such that  $f_x(x, y) = y^2$  and  $f_y(x, y) = 2xy$ .

$f(x, y) = xy^2 + C_1(y)$  and

$f(x, y) = xy^2 + C_2(x)$ , so let  $f(x, y) = xy^2$ .

Then the given integral equals  $[xy^2]_{(0,0)}^{(1,2)} = 4$ .