

Key

DATE _____

Select the correct answer

1. 8π
 Chapter: 132 Question: 16

2. $\frac{10\pi}{3}$

3. Chapter: 133 Question: 17

3.
$$\int_0^{2\pi} \int_0^{\sqrt{3}} \int_{\sqrt{4-r^2}}^2 r \, dr \, d\theta$$

4. Chapter: 135 Question: 12

4. a.
$$8 \int_0^{\pi/2} \int_0^a \int_0^{\sqrt{a^2-r^2}} r \, dz \, dr \, d\theta$$

b.
$$8 \int_0^{\pi/2} \int_0^{\pi/2} \int_0^a \rho^2 \sin \theta \, d\rho \, d\phi \, d\theta$$

5. Chapter: 137 Question: 25

5.
$$\frac{\partial(x, y)}{\partial(r, \theta)} = \begin{vmatrix} \frac{\partial x}{\partial r} & \frac{\partial x}{\partial \theta} \\ \frac{\partial y}{\partial r} & \frac{\partial y}{\partial \theta} \end{vmatrix} = \begin{vmatrix} \cos \theta & -r \sin \theta \\ \sin \theta & r \cos \theta \end{vmatrix} = r \cos^2 \theta + r \sin^2 \theta = r$$

6. Chapter: 138 Question: 6

6. $(z \cos yz + 2)\mathbf{i} - x\mathbf{k}$
 Chapter: 141 Question: 11

7. $\frac{1}{4}$

Chapter: 142 Question: 18

Select the correct answer

8.
$$W = \int_C \mathbf{F} \cdot d\mathbf{x} = \int_R \int_R (N_x - M_y) dA = \int_R \int_R 0 dA = 0$$

Chapter: 144 Question: 11

9.
$$\frac{27\sqrt{6}}{2}$$

Chapter: 146 Question: 14

10. 36π
Chapter: 148 Question: 11