Name: KEY	ID: KEY	Sec: 34(11:00-11:50) 23(1:10-2:00)
MATH-102	Term-132	Class-QUIZ-1

(show all your work and circle one letter to get a full mark or you will get zero)

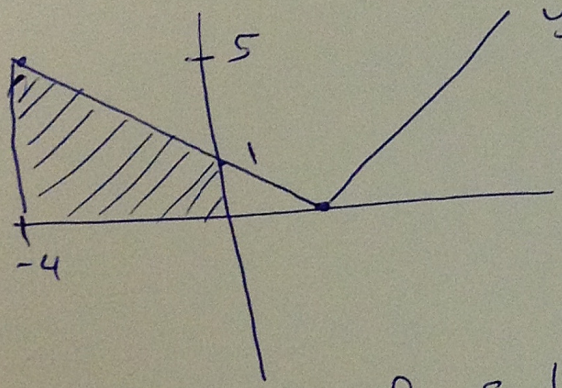
1)

$$\int_{-4}^{0}\left(|x-1|+\sqrt{16-x^2}\right)dx = \int_{-4}^{0}|x-1|\,dx + \int_{-4}^{0}\sqrt{16-x^2}\,dx$$

$$= I_1 + I_2$$

(a) $12\pi+4$
(b) $16\pi+4$
(c) $4\pi+1$
(d) $4\pi+16$
(e) $4\pi+12$
(f) none of the above

$$I_1 = \int_{-4}^{0}|x-1|\,dx$$

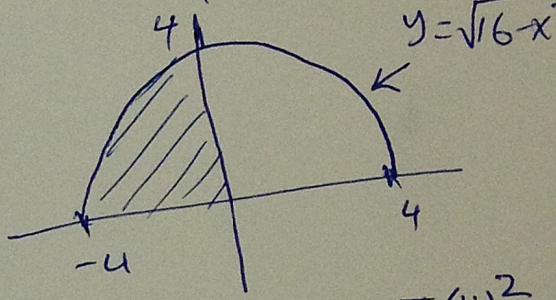


I_1 = large triangle − small triangle

$= \frac{1}{2}(5)(5) - \frac{1}{2}(1)(1)$

$= \frac{25}{2} - \frac{1}{2} = \frac{24}{2} = 12$

$$I_2 = \int_{-4}^{0}\sqrt{16-x^2}\,dx$$



Area of the circle $= \pi(4)^2 = 16\pi$

quarter of circle $= 4\pi$

$I_2 = 4\pi$

$$\text{Now} = \int_{-4}^{0}\left(|x-1|+\sqrt{16-x^2}\right)dx = I_1 + I_2 = 12 + 4\pi$$