

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

1)

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

(a)  $12\pi$

(b)  $16\pi$

(c)  $4\pi$

(d)  $4\pi+16$

(e)  $4\pi+12$

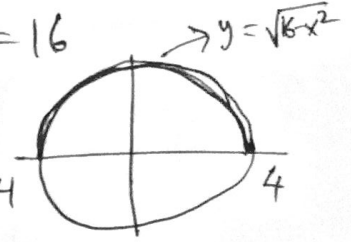
(f) none of the above

$$y = \sqrt{16-x^2} \Rightarrow x^2 + y^2 = 16$$

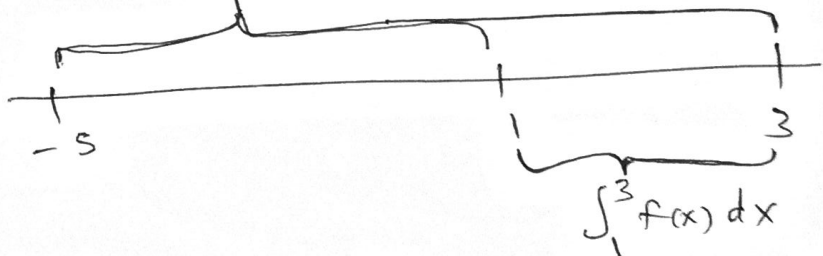
$$\int_{-4}^0 4\sqrt{16-x^2} dx = 4 \int_{-4}^0 \sqrt{16-x^2} dx$$

$$= 4 \left[ \frac{1}{4} \text{Area of the circle} \right]$$

$$= 4 \left[ \frac{1}{4} (\pi (4)^2) \right] = \pi (4)^2 = 16\pi$$



$$\int_{-5}^3 f(x) dx$$



$$2) \int_{-5}^3 f(x) dx + \int_3^1 f(x) dx =$$

$$\text{Now, } \int_{-5}^3 f(x) dx = \int_{-5}^1 + \int_1^3$$

(a)  $\int_{-5}^1 f(x) dx$

(b)  $\int_{-5}^3 f(x) dx$

(c)  $\int_{-5}^3 f(x) dx$

(d)  $\int_{-5}^1 f(x) dx$

(e) None of the above

$$= \int_{-5}^3 + \int_3^1 = \int_{-5}^1 + \int_1^3 + \int_3^1$$

$$= \int_{-5}^1 + \int_1^3 - \int_1^3 = \int_{-5}^1$$