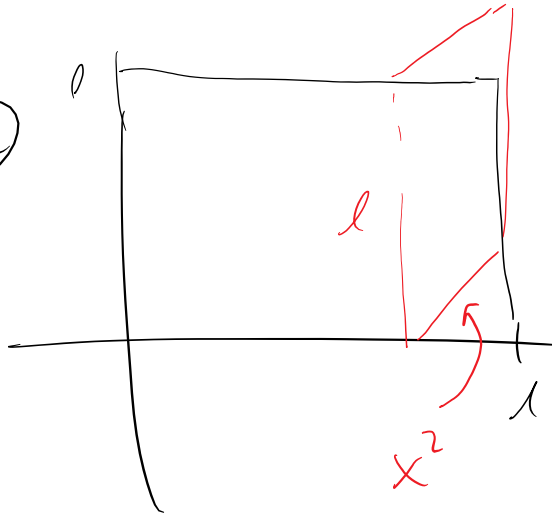


(12)



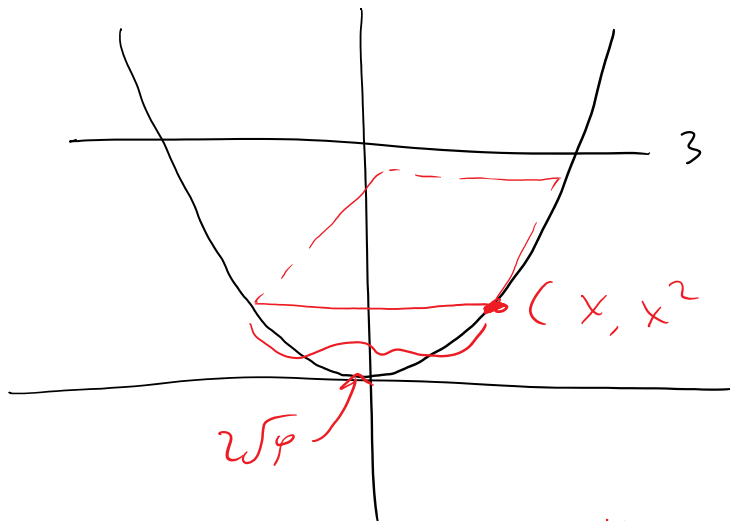
$$\text{area} = l x^2$$

$$\int_0^l x^2 dx = l \cdot \frac{1}{3} x^3 \Big|_0^l$$

$$= l \cdot \frac{1}{3} \cdot l^3$$

$$= \frac{1}{3} l^4$$

13



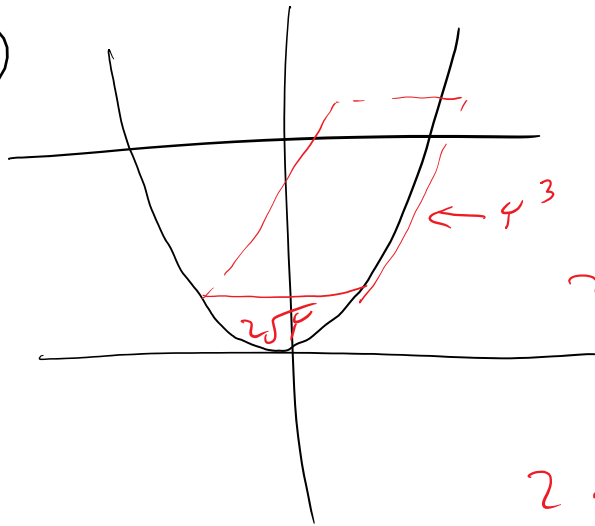
$$u = x^2$$
$$v = x$$
$$x = \pm\sqrt{y}$$

$$(x, x^2) \text{ or } (\sqrt{y}, y)$$

Area of square = $4y$

$$\int_0^3 4y \, dy = 2y^2 \Big|_0^3 = 18$$

14



$$\text{area} = 2 \int_0^3 y^{3.5} dy$$
$$2 \cdot \left[\frac{y^{4.5}}{4.5} \right]_0^3$$

$$= \frac{2}{4.5} \left(3^{4.5} \right)$$

(17)

$$f'(x) = a e^{-ax} (-a) =$$

$$-a^2 e^{-ax}$$

(E)

$$(27) \quad x(t) = \sin(2\pi t) + 2\pi t$$

$$v(t) = 2\pi \cos(2\pi t) + 2\pi = 0$$

$$2\pi (\cos(2\pi t) + 1) = 0$$

$$\cos 2\pi t = -1$$

$$\cos \pi = -1$$

$$2\pi t = \pi \quad 2t = 1$$

$$t = 1/2$$

(D)

390: 8, 9, 10