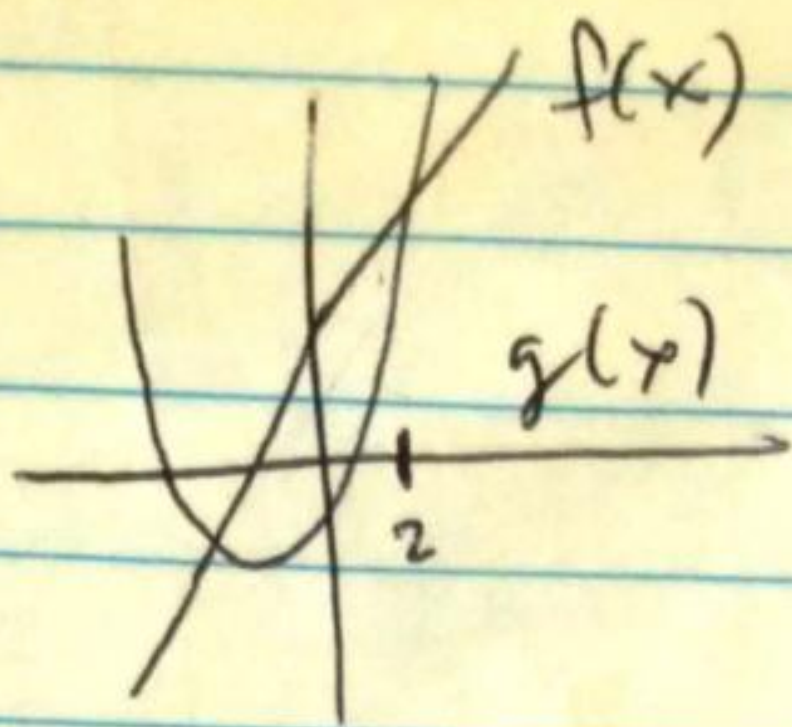


find area between.

① $f(x) = 6x + 8$ $g(x) = x^2 + 5x + 2$ over $[0, 2]$.



$$f(x) = g(x)$$

$$x^2 + 5x + 2 = 6x + 8$$

$$\Rightarrow x^2 - x - 6 = 0$$

$$(x-3)(x+2) = 0$$

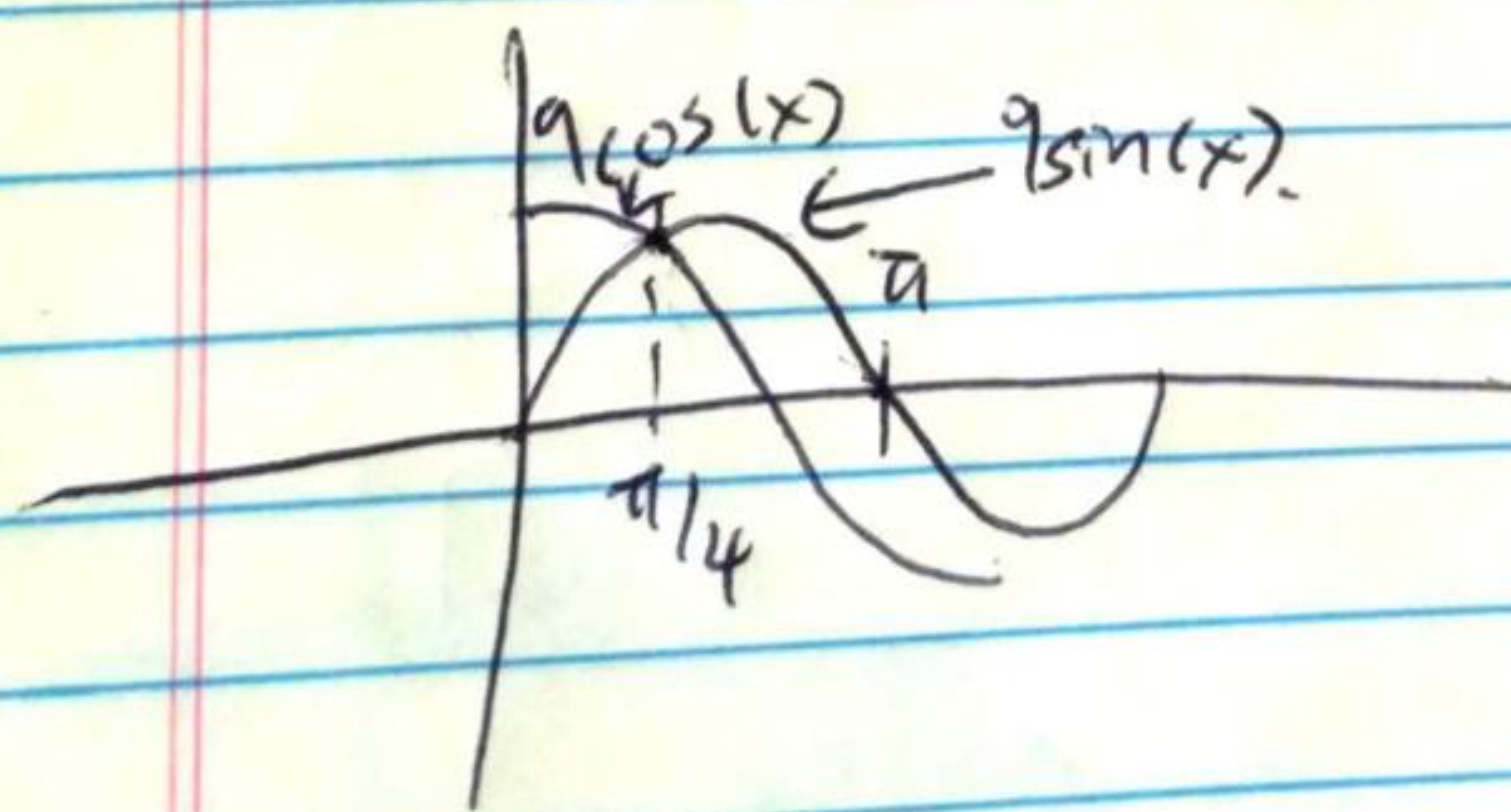
$$\Rightarrow x = 3, x = -2$$

$$\text{So, } f(x) \geq g(x)$$

$$\text{on } [0, 2].$$

$$\Rightarrow \int_0^2 f(x) - g(x) dx$$

② Find area between ~~graph~~ and ~~graph~~
 $y = 9\sin(x)$ and $y = 9\cos(x)$ over $[0, \pi]$.

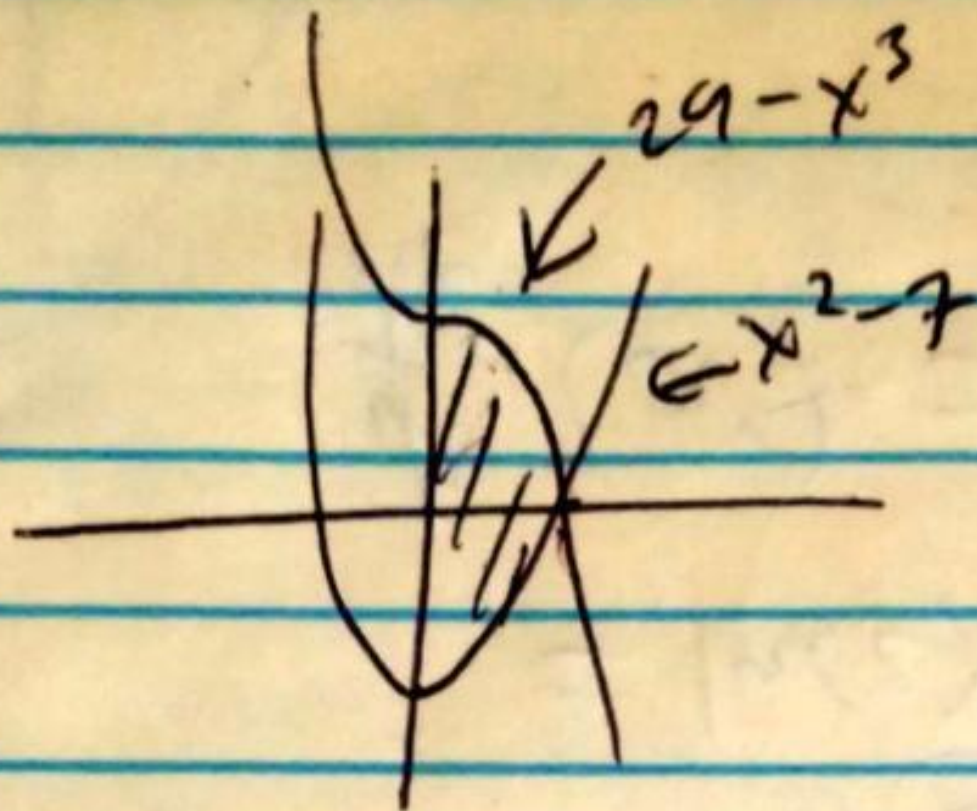


$$9\cos(x) = 9\sin(x)$$
$$\Rightarrow \pi/4 = x$$

$$= \int_0^{\pi/4} 9\cos(x) - 9\sin(x) dx$$

$$+ \int_{\pi/4}^{\pi} 9\sin(x) - 9\cos(x) dx$$

③ Find area enclosed by $y = x^2 - 7$, $y = 29 - x^3$
 $x = 0$.



first, set $29 - x^3 = x^2 - 7$

$$\Rightarrow x^3 + x^2 - 36 = 0$$

$$x = 3$$

$$\Rightarrow \int_0^3 (29 - x^3) - (x^2 - 7) dx$$

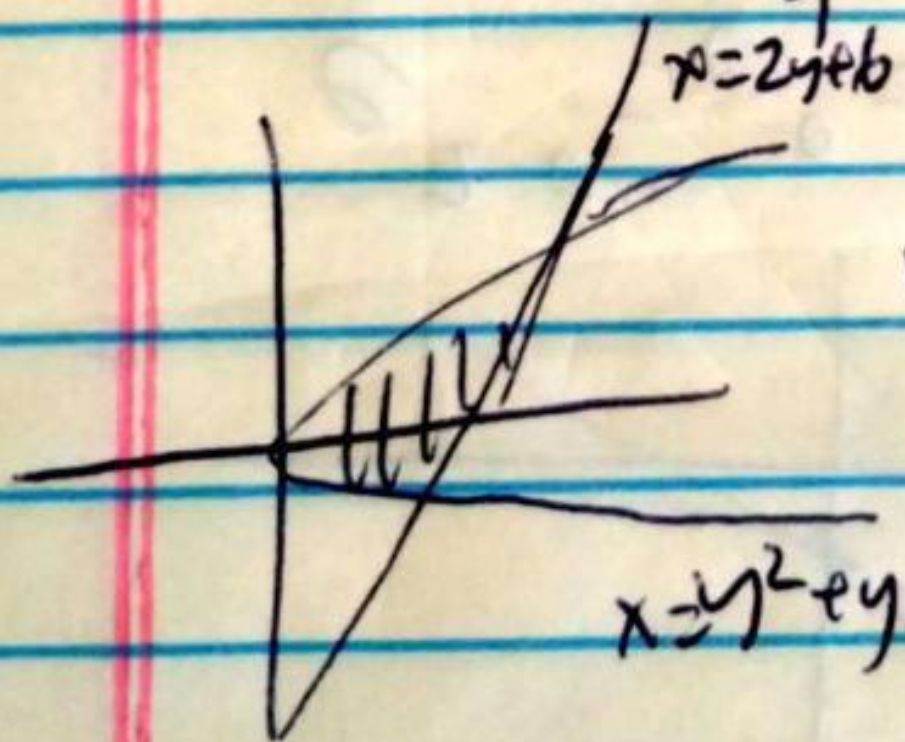
④ calculate area between $x = \frac{y^2 + y}{2}$ and $x = 2y + 6$.

$$y^2 + y = 2y + 6$$

$$y^2 - y - 6 = 0$$

$$(y - 3)(y + 2) = 0$$

$$y = 3, -2$$



$$\int_{-2}^3 (2y + 6) - (y^2 + y) dy$$