

FRQ Reference for 5B

2017	3 all	
2016	3 all	
2015	5 all	
2014	3 all	5d
2013	4 all	
2012	5 all	4d
2011	4 all	
2010	5 all	

$f(b)$
Finding y Values Given derivative, $f'(x)$,
and initial condition $(a, f(a))$

Given $(a, f(a))$ and $f'(x)$, find $f(b)$

$$\text{Use } f(b) = f(a) + \int_a^b f'(x) dx$$

Ex: Given $f'(x) = 3x^2 - 2x$ and $f(0) = 2$

Find $f(4)$

$$\text{So } f(4) = 50$$

$$\text{So } f(4) = 2 + \int_0^4 (3x^2 - 2x) dx$$

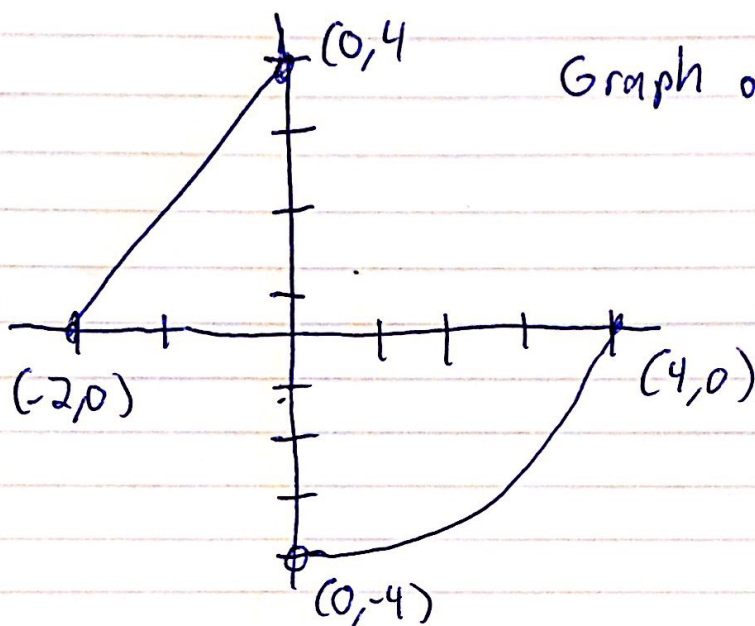
$$2 + \left[x^3 - x^2 \right]_0^4 = (4)^3 - (4)^2$$

$$2 + 48 = \boxed{50}$$

Quarter circle
and line segment,

Graph of f'

Ex 2)



$$f(0) = 2$$

find $f(4)$ and $f(-2)$

$$a) f(4) = 2 + \int_0^4 f'(x) dx$$

Area under curve
from $x=0$ to $x=4$

below x-axis

$$\text{so } 2 + \left[-\frac{(\pi r^2)}{4} \right]$$

$$2 + \left[-\frac{(\pi(4)^2)}{4} \right]$$

$$\text{so } f(4) = 2 - 4\pi$$

$$2 + [-4\pi]$$

$$b_i) f(-2) = 2 + \int_0^{-2} f'(x) dx \quad \text{so } 2 - \int_{-2}^0 f'(x) dx$$

wrong
order

$$2 - \left[\frac{bh}{2} \right]$$

$$\text{so } f(-2) = -2$$

$$2 - \left[\frac{(2)(4)}{2} \right] = 2 - 4 = -2$$