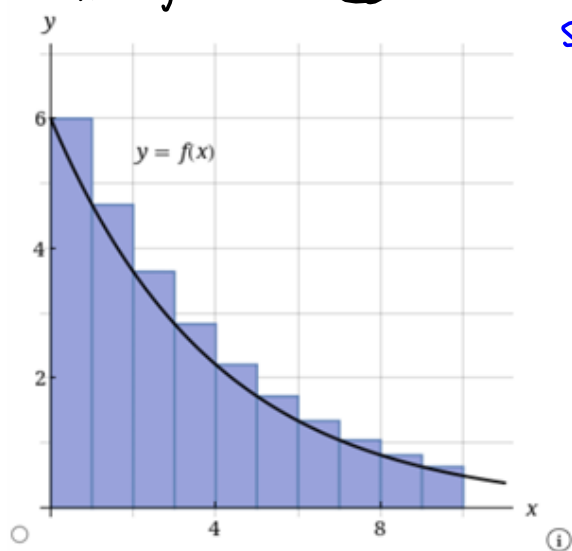


Have you looked @ S4.1?

Steve jumps the gun.



Anyone want to take Test 3 today?

$$(x-1)(x+2)(x-6) = (x^2+x-2)(x-6)$$

$$f(x) = x^3 + x^2 - 2x$$

$$-6x^2 - 6x + 12$$

$$x^3 - 4x^2 - 8x + 12$$

$$D = \mathbb{R}$$

$$R = \mathbb{R}$$

$$y\text{-int: } (0, 12)$$

$$x\text{-int: } (-2, 0), (1, 0), (6, 0)$$

$$-\frac{16}{3} - \frac{24}{3} = -\frac{40}{3}$$

$$f'(x) = 3x^2 - 8x - 8 = 3\left(x^2 - \frac{8}{3}x + \left(\frac{4}{3}\right)^2\right) - 3\left(\frac{16}{9}\right) - 8$$

$$= 3\left(x - \frac{4}{3}\right)^2 - \frac{40}{3} \stackrel{\text{SET}}{=} 0 \Rightarrow$$

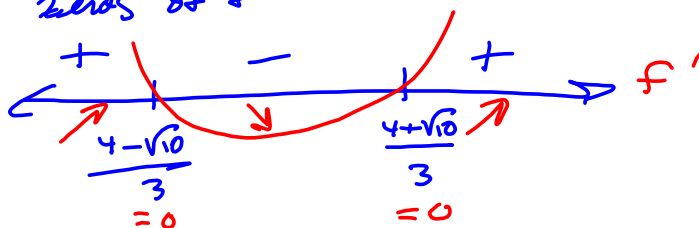
$$3\left(x - \frac{4}{3}\right)^2 = \frac{40}{3}$$

$$\left(x - \frac{4}{3}\right)^2 = \frac{40}{9} \Rightarrow x = \frac{4}{3} \pm \frac{\sqrt{40}}{3}$$

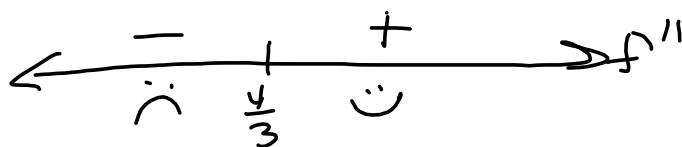
$$\begin{array}{r} 2\sqrt{40} \\ 2\sqrt{20} \\ 2\sqrt{10} \\ 5 \end{array}$$

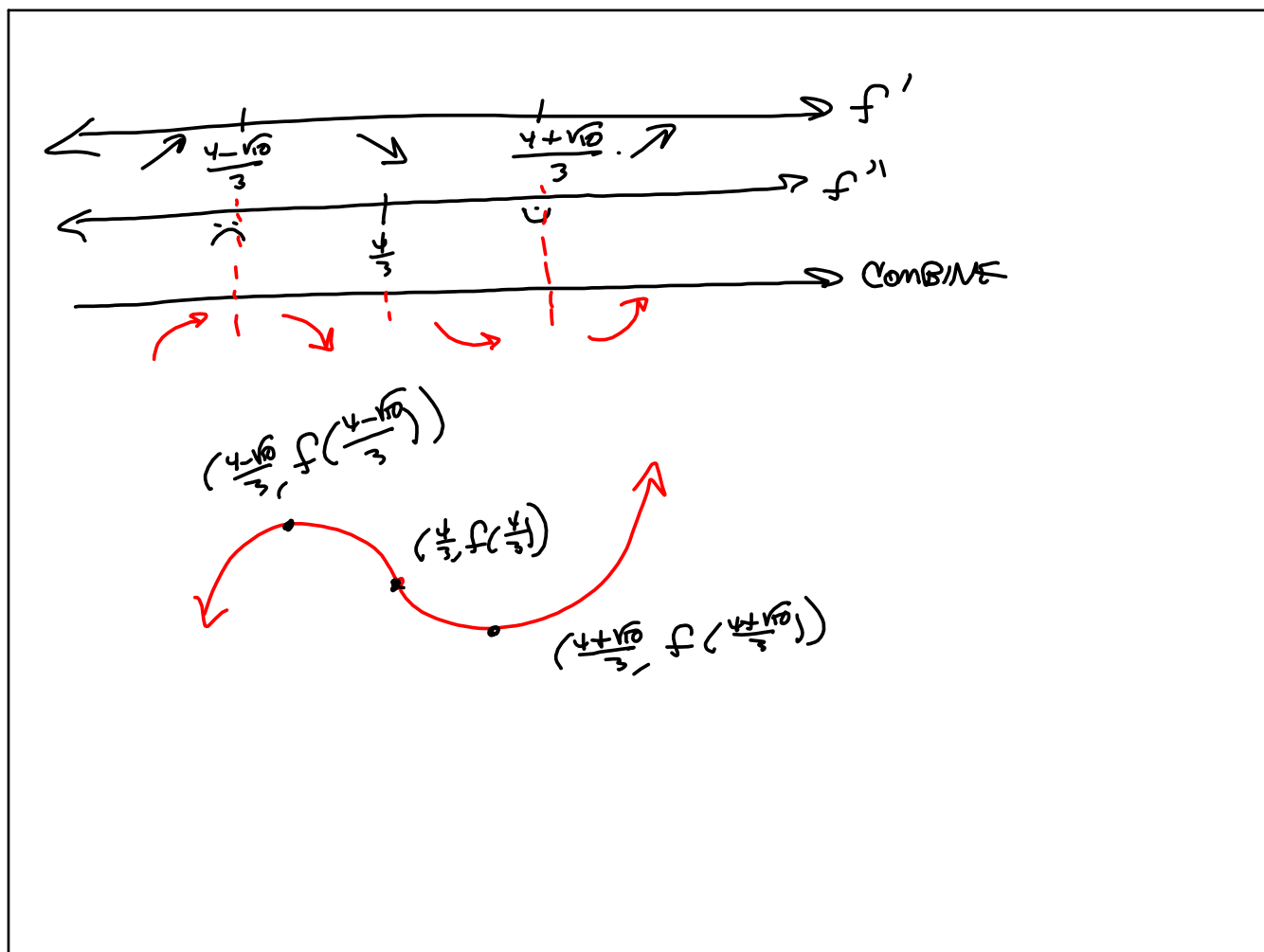
$$\begin{aligned} b^2 &= 4ac \\ &= 6^2 - 4(3)(-8) \\ &= 64 + 96 = 160 \\ \sqrt{160} &= 4\sqrt{10} \\ x &= \frac{-8 \pm 4\sqrt{10}}{2(3)} \\ &= \frac{-4 \pm 2\sqrt{10}}{3} \end{aligned}$$

zeros of f'



$$f''(x) = 6x - 8 \stackrel{\text{SET}}{=} 0 \Rightarrow 6x = 8 \Rightarrow x = \frac{8}{6} = \frac{4}{3}$$

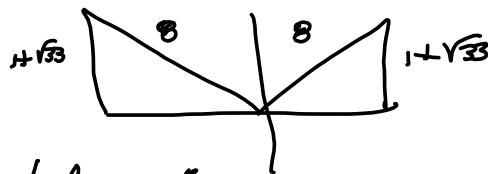




Exact: =

Approximate: $\approx$

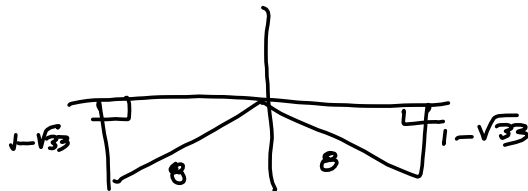
$$\sin(x) = \frac{1+\sqrt{3}}{8}$$



Exact Answer:

$$\arcsin\left(\frac{1+\sqrt{3}}{8}\right), \pi - \arcsin\left(\frac{1+\sqrt{3}}{8}\right)$$

$$\sin(x) = \frac{1-\sqrt{3}}{8}$$



Exact: $2\pi + \arcsin\left(\frac{1-\sqrt{3}}{8}\right)$

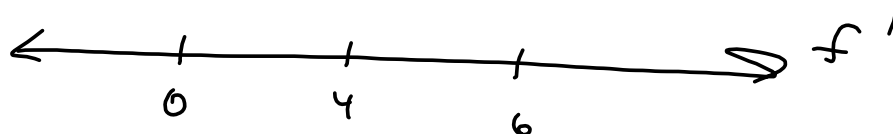
$$\pi - \arcsin\left(\frac{1-\sqrt{3}}{8}\right)$$

Questions from Chapter 3?

Want more take-home work?

I do

I made another Rational Function question 44.



$$x^{2/3}(6-x)^{1/3} \Rightarrow$$

$$f'(x) = \frac{2}{3}x^{-1/3}(6-x)^{1/3} + x^{2/3}\left(\frac{1}{3}\right)(6-x)^{-2/3}(-1)$$

$$= \frac{2(6-x)^{1/3}}{3x^{1/3}} - \frac{x^{2/3}}{3(6-x)^{2/3}} = \frac{2(6-x)^{1/3}(6-x)^{2/3} - x^{2/3}x^{1/3}}{3x^{1/3}(6-x)^{2/3}}$$

$$LCD = 3x^{1/3}(6-x)^{2/3}$$

$$= \frac{12 - 2x - x}{3x^{1/3}(6-x)^{2/3}}$$

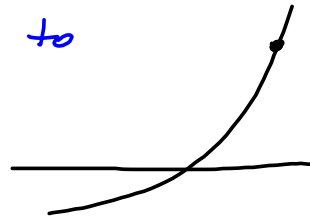
$$= \frac{12 - 3x}{3x^{1/3}(6-x)^{2/3}} = \frac{4-x}{x^{1/3}(6-x)^{2/3}}$$



	Test	
$(-\infty, 0)$	-	$f'(-1) = \frac{5}{3(1)(7)^{2/3}} < 0$ -
$(0, 4)$	+	$f'(1) = \frac{3}{3(1)(5)^{2/3}} > 0$
$(4, 6)$	-	
$(6, \infty)$	-	

Take-home Question

- (#1) Use a picture & some math to derive Newton's Method.



- (#2) on Chapter 3 Take-home.

$$R(x) = \frac{x^2 + 3x - 3}{x - 2} \quad \text{Re-Do of \#2.}$$

Next Semester: WebAssign (\$100) and MAPLE (about \$30)

Any old book, preferably Stewart's.

Test 3 is Open.