HW # 6.

Sec # 3.2

2.

(a) $f'(0) \approx -3$

(b) $f'(1) \approx 0$

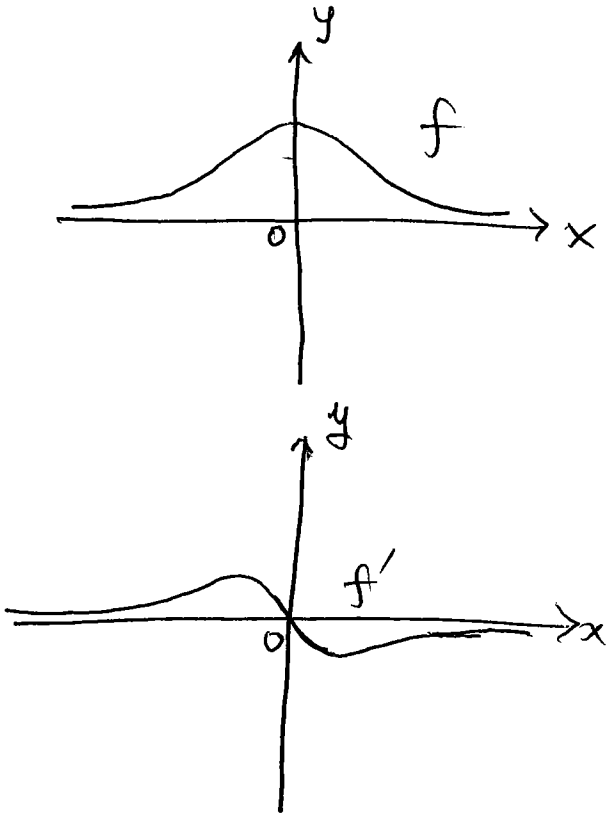
(c) $f'(2) \approx 1.5$

(d) $f'(3) \approx 2$

(e) $f'(4) \approx 0$

(f) $f'(5) \approx -1.2$

#6.



42. a must be the jerk since none of the graphs are 0 at its high and low points. $a = 0$ where b has max, so $b' = a$ $b = 0$ where c has a maximum so $c' = b$ we conclude that d is the position function, c is the velocity, b is the acceleration & a is jerk.

Sec 3.3

12

$$R(x) = \frac{\sqrt{10}}{x^7} = \sqrt{10}\, x^{-7}$$

$$R'(x) = -7\sqrt{10}\, x^{-8}$$

$$= -\frac{7\sqrt{10}}{x^8}$$

18 $g(u) = \sqrt{2}u + \sqrt{3u}$

$$= \sqrt{2}u + \sqrt{3}\, u^{1/2}$$

$$g'(u) = \sqrt{2} + \sqrt{3}\,\frac{1}{2}\, u^{-1/2}$$

$$= \sqrt{2} + \frac{\sqrt{3}}{2\sqrt{u}}$$

34 $g(t) = \dfrac{t - \sqrt{t}}{t^{1/3}}$

$$g'(t) = \frac{t^{1/3}\,(t - t^{1/2})' - (t - \sqrt{t})(t^{1/3})'}{(t^{1/3})^2}$$

$$= \frac{t^{1/3}\left(1 - \frac{1}{2\sqrt{t}}\right) - (t - \sqrt{t})\frac{1}{3}t^{-2/3}}{t^{2/3}}$$

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