

Pg 195 Evens

- ② Increasing $(-\infty, -1)$ decreasing $(-1, \infty)$
- ④ Increasing $(-1, \infty)$
- ⑥ Increasing $(-3, 2)$
- ⑧ constant $(-\infty, 0)$ increasing $(0, \infty)$
- ⑩ increasing $(-5, -4) \cup (-2, 0) \cup (2, 4)$
decreasing $(-4, -2) \cup (0, 2) \cup (4, 5)$
- ⑫ constant $(-\infty, -4) \cup (2, \infty)$
decreasing $(-4, 2)$
- ⑭ Relative max $(0, 2)$; Relative min $(-3, -1)$ and $(3, -1)$
- ⑮

34 odd function

36 Neither

50 a. Domain: $(-\infty, \infty)$

b. Range: $(-\infty, 4]$

c. X-ints: $(-4, 0)$ $(4, 0)$

d. Y-ints: $(0, 1)$

e. increasing intervals: $(-\infty, -2) \cup (0, 3)$

f. decreasing intervals: $(-2, 0) \cup (3, \infty)$

g. values where $f(x) \leq 0$: $(-\infty, -4] \cup [4, \infty)$

h. the values (x) for which f has a relative max: $x = -2$ and $x = 3$

i. the relative maxima of $f(x)$: $(-2, 4)$ and $(3, 2)$

j. $f(-2) = 4$

k. values of x for which $f(x) = 0$: $x = -4$; $x = 4$

l. neither

(52)

- a. Domain $(-\infty, 6]$
- b. Range $(-\infty, 1]$
- c. Zeros $x = -3, x = 3$
- d. $f(0) = 1$
- e. increasing $(-\infty, -2)$
- f. decreasing $(2, 6)$
- g. constant $(-2, 2)$
- h. $f(x) > 0$ $(-3, 3)$
- i. $f(x) = -2 \rightarrow x = -5, x = 5$
- j. $f(4)$ is negative
- k. neither
- l. yes relative max

Pg 226 Find Average Rate of Change.

(14) $\frac{f(4) - f(0)}{4 - 0} \rightarrow \frac{6(4) - 6(0)}{4}$

$\rightarrow \frac{24}{4} \rightarrow 6$

(16) $\frac{f(6) - f(3)}{6 - 3}$

$\rightarrow \frac{[(6)^2 - 2(6)] - [(3)^2 - 2(3)]}{3} \rightarrow \frac{21}{3}$

$\rightarrow 7$

$$\textcircled{18} \frac{f(16) - f(9)}{16 - 9} \rightarrow \frac{\sqrt{16} - \sqrt{9}}{7} \rightarrow \boxed{\frac{1}{7}}$$

$$\textcircled{20} \text{ a. } \frac{s(4) - s(3)}{4 - 3}$$

$s(t) = 12t^2$

$$\frac{12(4)^2 - 12(3)^2}{4 - 3} = \boxed{84 \text{ ft/sec}}$$

$$\text{ b. } \frac{s(3.5) - s(3)}{3.5 - 3}$$

$$\frac{12(3.5)^2 - 12(3)^2}{3.5 - 3} = \boxed{78 \text{ ft/sec}}$$

$$\text{ c. } \frac{s(3.01) - s(3)}{3.01 - 3}$$

$$\frac{12(3.01)^2 - 12(3)^2}{3.01 - 3} = \boxed{72.12 \text{ ft/sec}}$$

$$\text{ d. } \frac{s(3.001) - s(3)}{3.001 - 3}$$

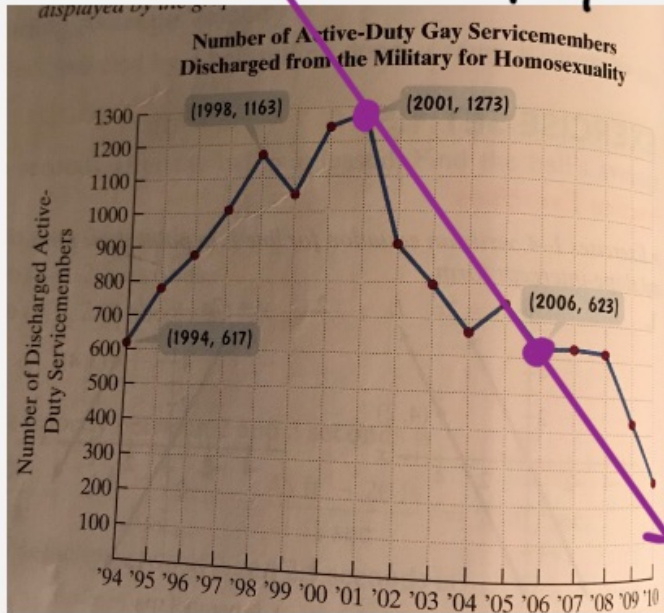
$$\frac{12(3.001)^2 - 12(3)^2}{3.001 - 3} = \boxed{72.012 \text{ ft/sec}}$$

32

(to nearest whole #)

$$\frac{623 - 1273}{2006 - 2001} = -130$$

↳ which means a decrease in 130 discharges per year



$$\frac{f(12) - f(7)}{12 - 7} = -96.3$$

↳ a decrease in 96.3 discharges per year.

number...

The function $f(x) = 1.1x^3 - 35x^2 + 264x + 557$ models the number of discharges, $f(x)$, under "don't ask, don't tell" x years after 1994. Use this model and its graph, shown below, to solve Exercises 31–32.

Graph of a Model for Discharges under "Don't Ask, Don't Tell"

Number of Discharges

Years after 1994

$f(x) = 1.1x^3 - 35x^2 + 264x + 557$

31. a. Find the slope of the secant line, rounded to the nearest whole number, from $x_1 = 0$ to $x_2 = 4$.
 b. Does the slope from part (a) underestimate or overestimate the average yearly increase that you determined in Exercise 29? By how much?

32. a. Find the slope of the secant line, rounded to the nearest whole number, from $x_1 = 7$ to $x_2 = 12$.
 b. Does the slope from part (a) underestimate or overestimate the average yearly decrease that you determined in Exercise 30? By how much?

