

Math 221, Quiz II, September 22, 2000

Answers

**I** (10 points) If  $s = \frac{2t + 5}{t^2 - 1}$  represents the displacement of a moving particle at time  $t$ , what is the velocity  $v$  at  $t = 0$ ?

**Answer:** Using the quotient rule,

$$v(t) = \frac{ds}{dt} = \frac{(t^2 - 1)(2) - (2t + 5)(2t)}{(t^2 - 1)^2}$$

So, the velocity  $v(0) = \frac{-2-0}{(-1)^2} = -2$ .

**II** (10 points) If  $3x \leq f(x) \leq x^3 + 2$  for all  $x$  between 0 and 2, use the Squeeze theorem to find  $\lim_{x \rightarrow 1} f(x)$ .

**Answer:** Since  $\lim_{x \rightarrow 1} 3x = 3 \leq \lim_{x \rightarrow 1} f(x) \leq \lim_{x \rightarrow 1} x^3 + 2 = 3$ , we know by the Squeeze Theorem that  $\lim_{x \rightarrow 1} f(x) = 3$  also.

----- Mon Sep 25 20:24:53 2000

There are 196 scores

range	count	percent
18... 20	110	56.1%
16... 17	31	15.8%
14... 15	13	6.6%
12... 13	11	5.6%
10... 11	14	7.1%
8... 9	5	2.6%
0... 7	12	6.1%

Mean score = 16.5.

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*/*:	*0	*1	*2	*3	*4	*5	*6	*7	*8	*9
0:	2	0	0	1	2	3	1	3	3	2
10:	11	3	7	4	7	6	14	17	14	17
20:	79									

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