GROUP QUIZ 7 QUESTIONS

TAKE HOME QUIZ TAKE HOME QUIZ

[1] A spotlight is on the floor. You are 6 feet tall, and you are standing 4 feet from the wall. If the spotlight moves away from the wall at 2 feet per second, how is your shadow on the wall changing when it (your shadow) is 8 feet tall ?

After you find the relevant equation, simplify before differentiating.

A monkey is sitting on a 10 foot ladder leaning against a wall. The monkey is 2 feet from the end that is touching the wall. If the bottom of the ladder is sliding away from the wall at 4 ft per second, how quickly is the monkey falling to the ground when the bottom of the ladder is 8 feet from the wall ?

After you find the relevant equation, simplify before differentiating.

- Draw a function that satisfies the following conditions.
 - f is defined for all $x \in [0, 5]$,
 - f is continuous at both x = 0 and x = 5, f has no vertical asymptotes on [0, 5],

f has an absolute minimum and a local maximum on [0, 5], and f has no absolute maximum on [0, 5].

- [b] f is defined for all $x \in [0, 5]$,
 - f is continuous at both x = 0 and x = 5
 - f has no vertical asymptotes on [0, 5],
 - f' is never 0 on [0, 5],
 - f has an absolute maximum on [0, 5],
 - and f has no absolute or local minimum on [0, 5].

[4]

[2]

[3]

a

Find the global extrema of the following functions on the specified interval. You may use the following approximations in your work.

	i ou ma	use the following approximations in your work.								
1	x	172	2	3	4	5	6	7	8	9
	e^{x}	2.7	7.4	20.1	54.6	148.4	403.4	1096.6	2980	8103
-	$\ln x$	0	0.7	1.1	1.4	1.6	1.8	1.9	2.1	2.2
										4
[a] $f(x) = x^2 - \ln x^2$ on $[1, e^2]$										
[b] $f(x) = \sqrt[3]{x(x-7)^2}$ on $[-1, 6]$										
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