

Classroom Voting Questions: Calculus I

3.6 The Chain Rule and Inverse Functions

1. $\frac{d}{dt} \ln(t^2 + 1)$ is

(a) $2t \ln(t^2 + 1)$

(b) $\frac{2t}{t^2+1}$

(c) $\frac{dt}{\ln(t^2+1)}$

(d) $\frac{1}{t^2+1}$

Answer: (b).

CC KC MA131 F05: 0/84/0/16

CC HZ MA131 F06: 10/80/0/10

CC KC MA121 F06: 4/80/0/16

CC HZ MA131 F07: 0/88/0/12 time 0:20

CC KC MA121 F07: 0/0/50/50 time 2:00

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SVC.03.06.010

2. $\frac{d}{dx} \ln(1 - x)$ is

(a) $-\ln(1 - x)$

(b) $-2x(1 - x^2)^{-1}$

(c) $-(1 - x)$

(d) $-(1 - x)^{-1}$

Answer: (d).

CC HZ MA131 F05: 0/0/10/90

CC HZ MA131 F06: 0/0/0/100

CC KC MA121 F06: 0/0/8/92

CC HZ MA131 F07: 6/0/0/94 time 0:30

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3. $\frac{d}{dx} \ln(\pi)$ is

- (a) $\frac{1}{\pi}$
- (b) $\frac{\ln(\pi)}{\pi}$
- (c) e^π
- (d) 0

Answer: (d).

CC HZ MA131 F05: 40/0/0/**60**
 CC KC MA131 F05: 16/0/0/**84**
 CC HZ MA131 F06: 15/5/0/**80**
 CC KC MA121 F06: 8/0/0/**92**
 CC HZ MA131 F07: 35/0/0/**65** time 0:15
 CC KC MA121 F07: 17/0/0/**83** time 1:30

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4. $\frac{d}{d\theta} \ln(\cos \theta)$ is

- (a) $\frac{\sin \theta}{\cos \theta}$
- (b) $-\sin \theta \ln(\cos \theta)$
- (c) $-\frac{\sin \theta}{\cos \theta}$
- (d) $-\frac{\sin \theta}{\ln(\cos \theta)}$

Answer: (c).

CC HZ MA131 F05: 10/10/**80**/0
 CC HZ MA131 F06: 5/0/**95**/0
 CC KC MA121 F06: 7/0/**93**/0
 CC HZ MA131 F07: 6/0/**94**/0 time 0:20

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5. If $g(x) = \sin^{-1} x$, then $g'(x)$ is

- (a) $\frac{1}{\sqrt{1-x^2}}$
- (b) $\frac{1}{\cos x}$
- (c) $-\frac{\cos x}{\sin^2 x}$
- (d) $\csc x \cot x$

Answer: (a).

CC HZ MA131 F05: **100**/0/0/0

CC KC MA131 F05: **100**/0/0/0

CC KC MA121 F06: **20**/28/52/0 (did not teach the rule first)

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6. If $g(x) = (\sin x)^{-1}$, then $g'(x)$ is

(a) $\frac{1}{\sqrt{1-x^2}}$

(b) $\frac{1}{\cos x}$

(c) $-\frac{\cos x}{\sin^2 x}$

(d) $\csc x \cot x$

Answer: (c). point out difference in notation between this problem and previous problem

CC HZ MA131 F05: 0/60/**40**/0

CC KC MA131 F05: 48/12/**40**/0

CC HZ MA131 F06: 10/20/**70**/0

CC KC MA121 F06: 12/0/**88**/0

CC HZ MA131 F07: 35/12/**53**/0 time 0:45

CC KC MA121 F07: 42/4/**54**/0 time 4:00

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7. If $p(x) = 3 \ln(2x + 7)$, then $p'(2)$ is

(a) $\frac{6}{11}$

(b) $\frac{6}{2x+7}$

(c) $\frac{3}{2}$

(d) $\frac{3}{x}$

(e) $\frac{3}{11}$

Answer: (a).

CC KC MA121 F07: **92**/4/4/0/0 time 4:00

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8. If $q = a^2 \ln(a^3 c \sin b + b^2 c)$, then $\frac{dq}{db}$ is

(a) $\frac{a^2}{a^3 c \sin b + b^2 c}$

(b) $\frac{a^5 c \cos b + 2a^2 bc}{a^3 c \sin b + b^2 c}$

(c) $\frac{a^3 c \cos b + 2bc}{a^3 c \sin b + b^2 c}$

(d) $\frac{6a^3 \cos b + 4ab}{a^3 c \sin b + b^2 c}$

Answer: (b).

CC KC MA121 F07: 0/77/18/5 time 5:00

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