Name: _____ **Block:** _____ **Seat:** _____ **ID: A**

Ch 5 MC Q and A

Multiple Choice
Identify the choice that best completes the statement or answers the question.

____ 1. Write the following expression as a logarithm of a single quantity.

$13\ln x - 12\ln\left(x^2+16\right)$

a. $\ln\left(13x - 12\left(x^2+16\right)\right)$

b. $\ln\left(\dfrac{x^{13}}{\left(x^2+16\right)^{12}}\right)$

c. $\ln\left(x^{13}\left(x^2+16\right)^{12}\right)$

d. $\ln\left(x^{13} - \left(x^2+16\right)^{12}\right)$

e. $\ln\left(\dfrac{x^{13}}{12\left(x^2+16\right)}\right)$

____ 2. Write the following expression as a logarithm of a single quantity.

$\ln x - 4\ln\left(x^2+1\right)$

a. $\ln\left(\dfrac{x}{\left(x^2+1\right)^{-4}}\right)$

b. $\ln\left(x-4\left(x^2+1\right)\right)$

c. $\ln\left(\dfrac{x}{4\left(x^2+1\right)}\right)$

d. $\ln\left(\dfrac{-4x}{x^2+1}\right)$

e. $\ln\left(\dfrac{x}{\left(x^2+1\right)^4}\right)$

____ 3. Use implicit differentiation to find $\dfrac{dy}{dx}$.

$x^3 + 5\ln y = 4$

a. $-\dfrac{3x^2y}{5}$

b. $\dfrac{3x^2y}{5}$

c. $\dfrac{y\left(4+3x^2\right)y}{5}$

d. $\dfrac{3x^2}{5y}$

e. $\dfrac{y\left(4-3x^2\right)}{5}$

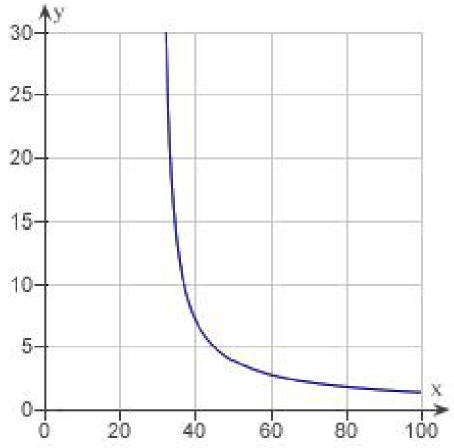
____ 4. The relationship between the number of decibels β and the intensity I of sound in watts per centimeter squared is $\beta = 10\log_{10}\left(\frac{I}{10^{-16}}\right)$. Determine the number of decibels of a sound with an intensity of 10^{-9} watts per square centimeter.

a. 250 decibels
b. 65 decibels
c. 70 decibels
d. 240 decibels
e. 75 decibels

____ 5. Suppose the table below shows the temperature $T(°F)$ at which a given liquid boils at selected pressures p (pounds per square inch). A model that approximates the data is $T = 107.97 + 64.96 \ln p + 9.91\sqrt{p}$. Use a graphing utility to graph T'.

P	5	10	14.696(1 atm)	20	30	40	60	80	100
T	234.68	288.88	320.55	346.89	383.19	410.28	450.7	481.26	506.22

a.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15
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x
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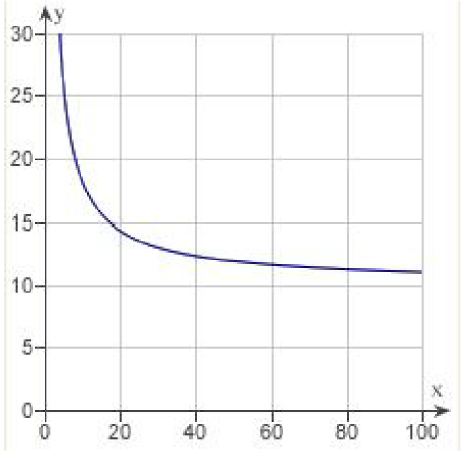
b.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x
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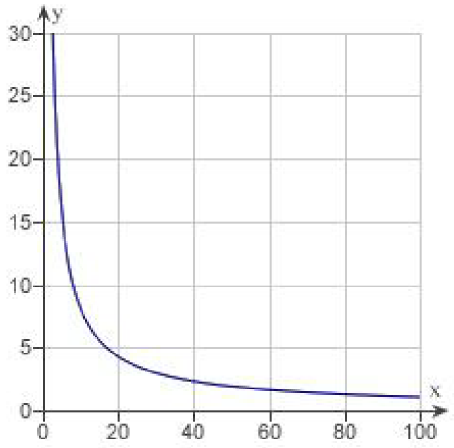
c.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x
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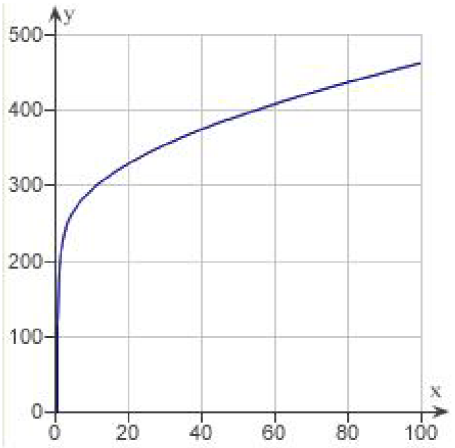
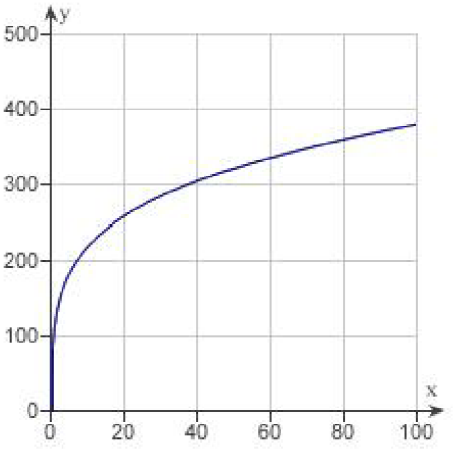
80
100

d.


y
500
400
300
200
100
0
x
0
20
40
60
80
100

e.


y
500
400
300
200
100
0
x
0
20
40
60
80
100

____ 6. Suppose the table below shows the temperature $T(°F)$ at which a given liquid boils at selected pressures p (pounds per square inch). A model that approximates the data is $T = 127.97 + 34.96 \ln p + 8.91\sqrt{p}$. Find $\lim_{p \to \infty} T'(p)$.

P	5	10	14.696 (1 atm)	20	30	40	60	80	100
T	204.16	236.64	256.08	272.55	295.68	313.29	340.12	360.86	378.07

a. 1
b. 0
c. $-\infty$
d. -1
e. ∞

____ 7. Find the indefinite integral.

$$\int \frac{x}{-4x^2 + 9}\, dx$$

a. $\dfrac{\ln\left|-4x^2 + 9\right|}{-4x^2 + 9} + C$
b. $\dfrac{-1}{8}\ln\left|-4x^2 + 9\right| + C$
c. $\ln\left|-4x^2 + 9\right| + C$
d. $\ln\left|-4x^2 - 9\right| + C$
e. $\dfrac{1}{-8x} + C$

____ 8. Find $\int \frac{x^2 - 14x + 10}{x + 12}\,dx$.

a. $\int \frac{x^2 - 14x + 10}{x + 12}\,dx = \frac{1}{2}x^2 - 26x + 322\ln|x + 12| + C$

b. $\int \frac{x^2 - 14x + 10}{x + 12}\,dx = \frac{1}{2}x^2 - 26x + 34\ln|x + 12| + C$

c. $\int \frac{x^2 - 14x + 10}{x + 12}\,dx = x^2 - 26x + 322\ln|x + 12| + C$

d. $\int \frac{x^2 - 14x + 10}{x + 12}\,dx = \frac{1}{2}x^2 + 2x + 34\ln|x + 12| + C$

e. $\int \frac{x^2 - 14x + 10}{x + 12}\,dx = x^2 + 2x + 34\ln|x + 12| + C$

Skip this

____ 9. Find $\int \frac{\sqrt{x}}{x - 4}\,dx$.

This needs division and partial fraction decomposition, so I would only put this on a BC Calculus test....

a. $\int \frac{\sqrt{x}}{x - 4}\,dx = \ln\left(\sqrt{x} + \sqrt{x - 4}\right) + C$

b. $\int \frac{\sqrt{x}}{x - 4}\,dx = \ln\left(\sqrt{x} - \sqrt{x - 4}\right) + C$

c. $\int \frac{\sqrt{x}}{x - 4}\,dx = -\frac{1}{2}\ln\left(\frac{\sqrt{x} + \sqrt{x - 4}}{2}\right) + C$

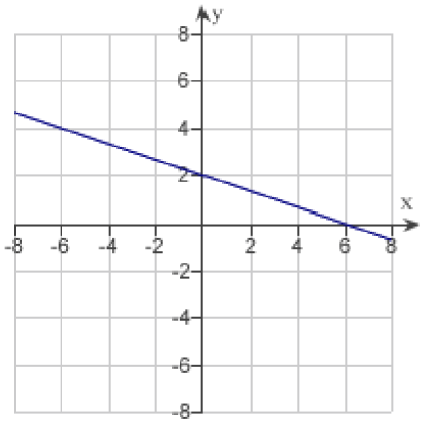
d. $\int \frac{\sqrt{x}}{x - 4}\,dx = 2\ln\left(\frac{\sqrt{x} - 2}{\sqrt{x} + 2}\right) + 2\sqrt{x} + C$ **Take the derivative, and it works**

e. $\int \frac{\sqrt{x}}{x - 4}\,dx = 2\ln\left(\frac{\sqrt{x} + 2}{\sqrt{x} - 2}\right) + 2\sqrt{x} + C$

____ 10. Suppose a population of bacteria is changing at a rate of $\frac{dp}{dt} = \frac{1{,}000}{1 + 0.5t}$, where t is the time in days. The initial population (when $t = 0$) is 500. Write an equation that gives the population at any time t.

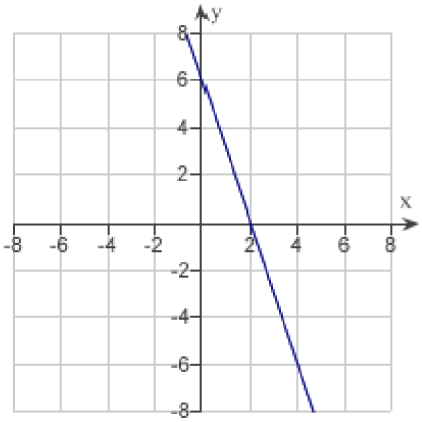
a. $p(t) = 2{,}000\ln|1 + 0.5t| + 250$
b. $p(t) = \ln|1 + 0.5t| + 500$
c. $p(t) = 1{,}000\ln|1 + 0.5t| + 500$
d. $p(t) = 1{,}000\ln|1 + 0.5t| + 250$
e. $p(t) = 2{,}000\ln|1 + 0.5t| + 500$

____ 11. Match the graph of the function given below with the graph of its inverse function.



Name: _____ **ID: A**

a.



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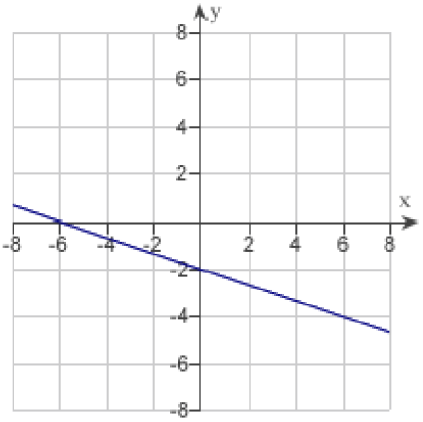
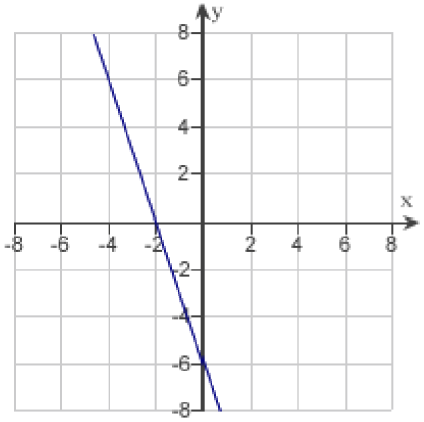
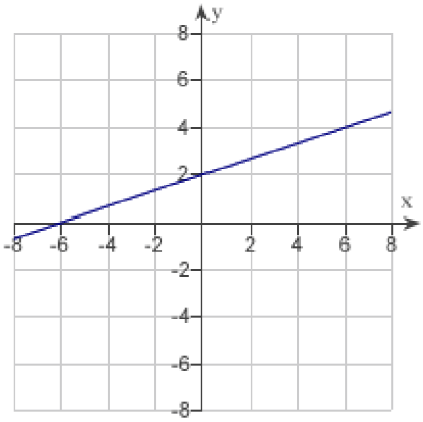


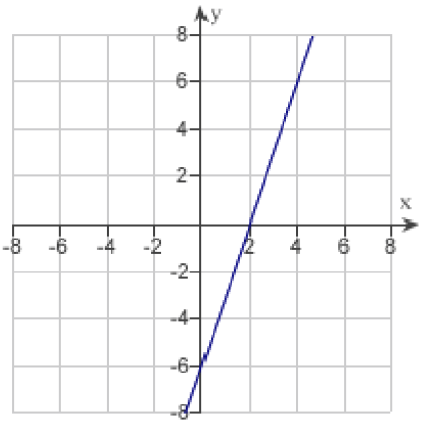
c.



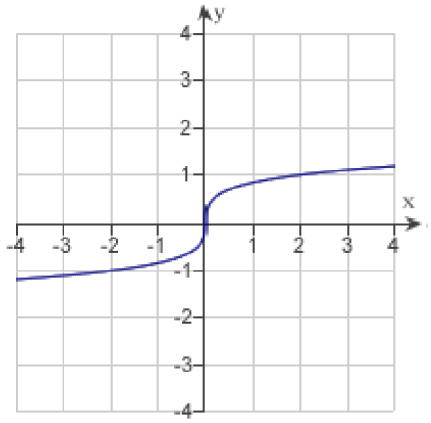
d.



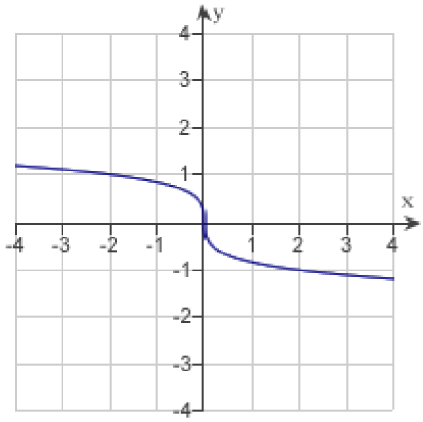
e.



____ 12. Match the graph of the function given below with the graph of its inverse function.



a.


y
x
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3
2
1
-1
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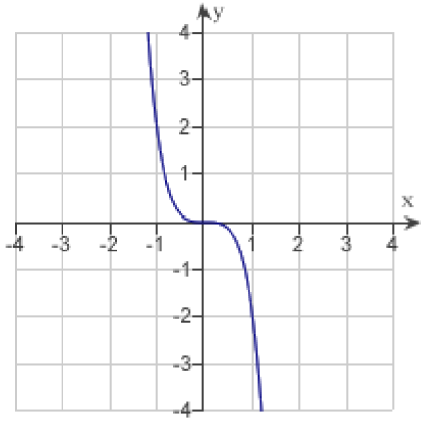
-3
-4
-4
-3
-2
-1
1
2
3
4

b.


y
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-4
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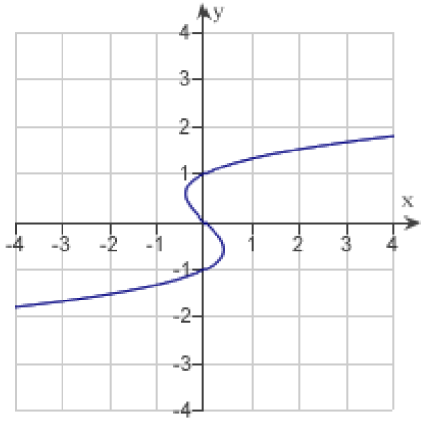
-2
-1
1
2
3
4

c.


y
x
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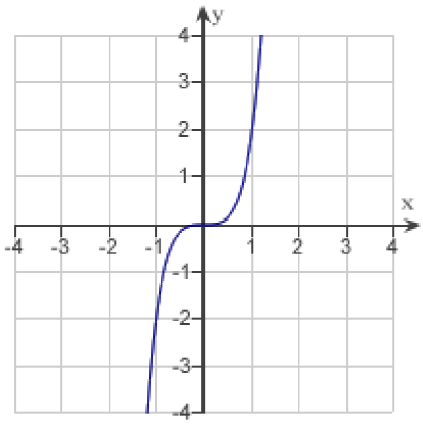
-4
-4
-3
-2
-1
1
2
3
4

d.


y
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-1
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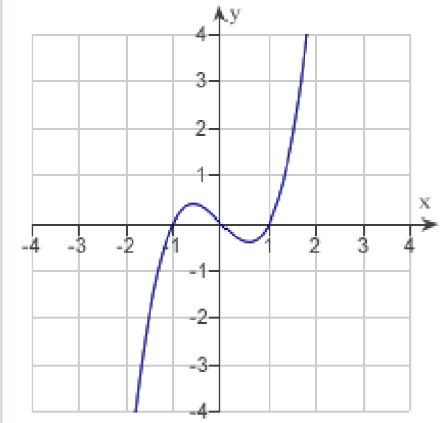
e.


y
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-1
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-3
-4
-4
-3
-2
-1
1
2
3
4

____ 13. Use the Horizontal Line Test to determine whether the following statement is true or false.

The function $f(x) = \frac{3}{19}x + 3$ is one-to-one on its entire domain and therefore has an inverse function.

a. false
b. true

____ 14. True or False: The function $f(x) = \frac{1}{s-38} - 2$ is one-to-one on its entire domain.

a. false
b. true

____ 15. Find $f^{-1}(x)$ if $f(x) = x^{25}$.

a. $f^{-1}(x) = x^{-25}$
b. $f^{-1}(x) = x^{\frac{1}{25}}$
c. $f^{-1}(x) = \frac{1}{25}x^{-25}$
d. $f^{-1}(x) = \frac{1}{26}x^{26}$
e. $f^{-1}(x) = 25x^{24}$

____ 16. Use the functions $f(x) = x + 2$ and $g(x) = 4x - 7$ to find the function $\left(g^{-1} \circ f^{-1}\right)(x)$.

a. $\frac{x-5}{7}$
b. $4x + 5$
c. $4x - 1$
d. $\frac{x+5}{4}$
e. $\frac{x-1}{4}$

____ 17. Use the functions $f(x) = x + 2$ and $g(x) = 4x - 3$ to find the function $(f \circ g)^{-1}(x)$.

a. $4x - 5$
b. $\frac{x-5}{4}$
c. $\frac{x+1}{4}$
d. $\frac{x-1}{3}$
e. $4x + 1$

____ 18. Solve the following equation for x.

$\ln x^{-10} = 6$

a. $x = \sqrt[10]{\ln(6)}$
b. $x = \frac{6}{\ln(10)}$
c. $x = \sqrt[10]{e^{-6}}$
d. $x = \sqrt[10]{e^{6}}$
e. $x = \ln(10)\ln(6)$

____ 19. Solve the following equation for x.

$\ln(x-5)^{5} = 3$

a. $x = 8$
b. $x = e^{\sqrt[5]{3}} + 5$
c. $x = \frac{3}{\ln(5)^{5}}$
d. $x = e^{\frac{3}{5}} + 5$
e. no solution

____ 20. Find $\frac{dy}{dx}$ if $y = e^{4x^3}$.

a. $\frac{dy}{dx} = 3e^{4x}$

b. $\frac{dy}{dx} = e^{4x^3}$

c. $\frac{dy}{dx} = 12x^2 \ln\left(4^3\right)$

d. $\frac{dy}{dx} = 4x^3 e^{4x^{3-1}}$

e. $\frac{dy}{dx} = 12x^2 e^{4x^3}$

____ 21. Find $f''(x)$ if $f(x) = (7+4x)e^{-4x}$.

a. $f''(x) = -80(7+4x)e^{-4x}$

b. $f''(x) = (-80-64x)e^{-4x}$

c. $f''(x) = -(24+16x)e^{-4x}$

d. $f''(x) = (80-64x)e^{-4x}$

e. $f''(x) = (80+64x)e^{-4x}$

____ 22. Find all points of inflection on the graph of the function $f(x) = -5e^{-7x^2}$.

a. $\left(\frac{1}{\sqrt{7}}, -\frac{5}{e^2}\right), \left(-\frac{1}{\sqrt{7}}, -\frac{5}{e^2}\right)$

b. $\left(\frac{1}{\sqrt{14}}, -\frac{5}{e}\right), \left(-\frac{1}{\sqrt{14}}, -\frac{5}{e}\right)$

c. $\left(\frac{1}{\sqrt{14}}, -\frac{5}{\sqrt{e}}\right)$

d. $\left(\frac{1}{\sqrt{14}}, -\frac{5}{\sqrt{e}}\right), \left(-\frac{1}{\sqrt{14}}, -\frac{5}{\sqrt{e}}\right)$

e. $\left(\frac{1}{\sqrt{7}}, -\frac{5}{e}\right), \left(-\frac{1}{\sqrt{7}}, -\frac{5}{e}\right)$

____ 23. The value V (in dollars) of an item t years after it is purchased is $V = 10{,}000e^{-0.5286t}$, $0 \le t \le 10$. Find the rate of change of V with respect to t when $t = 1$. Round your answer to two decimal places.

a. –3,115.72 dollars/year
b. –1,944.61 dollars/year
c. 3,115.72 dollars/year
d. –1,836.5 dollars/year
e. 1,944.61 dollars/year

____ 24. The table lists the approximate value V of a mid-sized sedan for the years 2003 through 2009. The variable t represents the time in years, with $t = 3$ corresponding to 2003. Find the rate of change in the value of the sedan when $t = 3$ using the exponential model $V = -2{,}318.20e^{-0.1142t}$. Round your answer to two decimal places.

h	3	4	5	6	7	8	9
p	\$20,046	\$18,596	\$16,851	\$14,001	\$12,226	\$11,101	\$10,841

a. $V'(x) \approx -2{,}598.56$ dollars/year
b. $V'(x) \approx -2{,}318.20$ dollars/year
c. $V'(x) \approx -2{,}068.08$ dollars/year
d. $V'(x) \approx -2{,}912.84$ dollars/year
e. $V'(x) \approx -1{,}844.95$ dollars/year

____ 25. Find the indefinite integral.

$$\int 2xe^{4x^2}\,dx$$

a. $16x^2e^{4x^2} + C$
b. $\frac{1}{4}xe^{4x^2} + C$
c. $\frac{1}{4}e^{4x^2} + C$
d. $\frac{1}{2}e^{4x^2} + C$
e. $8xe^{4x^2} + C$

____ 26. Evaluate the definite integral.

$$\int_{1}^{7} \frac{e^{7\sqrt{x}}}{\sqrt{x}}\,dx$$

a. $e^{7\sqrt{7}} - e^{7}$

b. $\dfrac{e^{7\sqrt{7}} - e^{7}}{7}$

c. $\dfrac{2\left(e^{7\sqrt{7}} - e^{7}\right)}{3(7)^{3/2}}$

d. $\dfrac{e^{7\sqrt{7}} - e^{7}}{14}$

e. $\dfrac{2\left(e^{7\sqrt{7}} - e^{7}\right)}{7}$

____ 27. Evaluate the definite integral.

$$\int_{\ln 2}^{\ln 4} e^{-x}\,dx$$

a. 6

b. $\dfrac{1}{16}$

c. $\dfrac{3}{4}$

d. $\dfrac{1}{4}$

e. 2

____ 28. A valve on a storage tank is opened for 4 hours to release a chemical in a manufacturing process. The flow rate R (in liters per hour) at time t (in hours) is given by the linear model $\ln R = -0.6155t + 15.0609$. Write the linear model in exponential form.

a. $R = -15.0609e^{-0.6155t}$
b. $R = 8.0609e^{-0.6155t}$
c. $R = 15.0609e^{-0.6155t}$
d. $R = 3{,}474{,}287.5695e^{-0.6155t}$
e. $R = 3{,}474{,}287.5695e^{0.6155t}$

____ 29. Solve the following equation for x.

$$2\left(4^{2x-4}\right) = 106$$

a. $x = \dfrac{\log_4 53 + 2}{4}$
b. $x = \dfrac{\ln 53 + 4}{2}$
c. $x = \dfrac{\log_4 53 + 4}{2}$
d. $x = \dfrac{\ln 53 - 4}{2}$
e. $x = \dfrac{\log_4 53 - 4}{2}$

____ 30. Use logarithmic differentiation to find $\dfrac{dy}{dx}$.

$$y = x^{8x}$$

a. $8x^{7x}$
b. $8x^{8x-1}$
c. $8x^{8x} \ln x$
d. $8(\ln x + 1)$
e. $8x^{8x}(\ln x + 1)$

____ 31. Write the following expression in algebraic form.

$\sin\left(\arccos(2x)\right)$

a. $\sqrt{1-4x^2}$
b. $1-2x^2$
c. $1+2x^2$
d. $1+4x^2$
e. $\sqrt{1-2x^2}$

____ 32. Solve the following equation for x.

$\arccos(10x-\pi) = \frac{1}{2}$

a. $x = \frac{\sin\left(\pi+\frac{1}{2}\right)}{10}$
b. $x = \frac{\pi+\sec\left(\frac{1}{2}\right)}{10}$
c. $x = \frac{\sec\left(\pi+\frac{1}{2}\right)}{10}$
d. $x = \frac{\cos\left(\pi+\frac{1}{2}\right)}{10}$
e. $x = \frac{\pi+\cos\left(\frac{1}{2}\right)}{10}$

____ 33. Find the derivative of the function $f(x) = 13\arcsin(x-1)$.

a. $\dfrac{13}{\sqrt{1+2x-x^2}}$

b. $\dfrac{13}{\sqrt{2x-x^2}}$

c. $\dfrac{13}{\sqrt{1-4x+x^2}}$

d. $\dfrac{13}{\sqrt{2x+x^2}}$

e. $\dfrac{13}{\sqrt{4x-x^2}}$

____ 34. Find the derivative of the function $h(t) = 2\sin(\arccos t)$.

a. $\dfrac{2}{\sqrt{1-t^2}}$

b. $2t\sqrt{1-t^2}$

c. $-\dfrac{2t}{\sqrt{1-t^2}}$

d. $\dfrac{t}{\sqrt{1+t^2}}$

e. $2t\sqrt{1+t^2}$

____ 35. Find the slope-intercept form of the equation of the line tangent to the graph of $y = \arctan(7x)$ when $x = \frac{\sqrt{3}}{7}$.

a. $y = \frac{7x}{4} + \frac{\pi}{6} + \frac{\sqrt{3}}{4}$

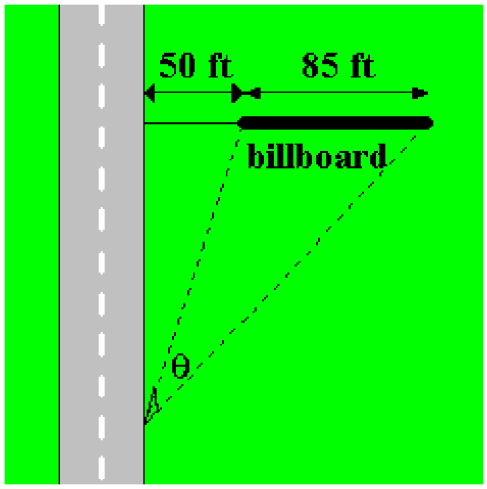
b. $y = \frac{7x}{4} + \frac{\pi}{3} - \frac{\sqrt{3}}{4}$

c. $y = \frac{7x}{6} + \frac{\pi}{6} + \frac{1}{2}$

d. $y = \frac{7x}{4} + \frac{\pi}{6} - \frac{\sqrt{3}}{4}$

e. $y = \frac{7x}{6} + \frac{\pi}{6} - \frac{1}{2}$

____ 36. An 85-foot billboard is perpendicular to a straight road and is 50 feet from the road as shown in the figure. Find the point on the road such that the angle θ subtended by the billboard is a maximum. How far is this point from the point on the road directly across from the billboard (in feet)? Round your answer to two decimal places.



a. 50.00 ft
b. 29.41 ft
c. 41.08 ft
d. 82.16 ft
e. 85.00 ft

____ 37. Find the integral $\int \frac{t}{t^4+81}\,dt$.

a. $\frac{1}{18}\arctan 9t^2\,dt+C$

b. $\frac{1}{18}\arctan \frac{t^2}{9}\,dt+C$

c. $\arctan \frac{t^2}{81}\,dt+C$

d. $\frac{1}{9}\arctan 81t^2\,dt+C$

e. $\arctan \frac{t^2}{9}\,dt+C$

____ 38. Find the indefinite integral.

$$\int \frac{2x-4}{x^2+4x+13}\,dx$$

a. $\ln\left|x^2+4x+13\right|-\frac{8}{3}\arctan\left(\frac{x+2}{3}\right)+C$

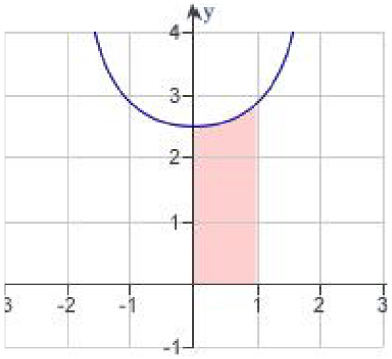
b. $\ln\left|x^2+4x+13\right|+C$

c. $-\frac{8}{3}\arctan\left(\frac{x+2}{3}\right)+C$

d. $\ln\left|x^2+4x+13\right|+\frac{8}{3}\arctan\left(\frac{x+2}{3}\right)+C$

e. $\frac{8}{3}\arctan\left(\frac{x+2}{3}\right)+C$

____ 39. Find the area of the shaded region for the function $y = \dfrac{5}{\sqrt{4 - x^2}}$.



a. $\dfrac{\pi}{6}$

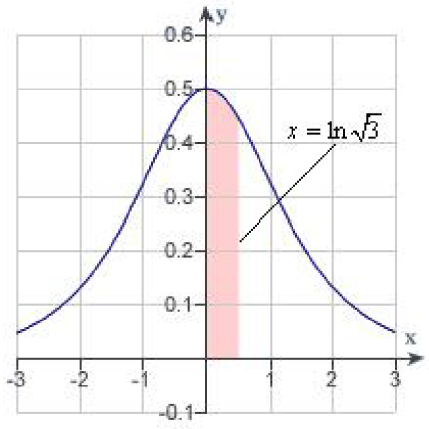
b. $\dfrac{5\pi}{6}$

c. $\dfrac{\pi}{2}$

d. $\dfrac{2\pi}{3}$

e. $\dfrac{\pi}{3}$

____ 40. Find the area of the shaded region for the function $y = \dfrac{e^x}{1+e^{2x}}$.



a. $\dfrac{\pi}{12}$

b. $\dfrac{\pi}{4}$

c. $\dfrac{\pi}{3}$

d. $\dfrac{5\pi}{12}$

e. $\dfrac{\pi}{6}$

Name: _____ **Block:** _____ **Seat:** _____ **ID: A**

L' Hopital Practice

Multiple Choice
Identify the choice that best completes the statement or answers the question.

____ 1. Evaluate the limit $\lim_{x \to 8} \frac{-2x^2 + 25 - 72}{x - 8}$ first by using techniques from Chapter 1 then by using L'Hopital's Rule.

a. 8
b. 0
c. −7
d. 7
e. does not exist

____ 2. Evaluate the limit $\lim_{x \to 0} \frac{\sqrt{49 - x^2} - 7}{9x}$ using L'Hopital's Rule if necessary.

a. $-\frac{1}{9}$
b. $-\frac{7}{9}$
c. 1
d. 0
e. does not exist

____ 3. Evaluate the limit $\lim_{x \to 0^+} \frac{3\left(e^x - 1 - x\right)}{10x^3}$ using L'Hopital's Rule if necessary.

a. $\frac{1}{20}$
b. $-\infty$
c. ∞
d. 0
e. $\frac{3}{10}$

____ 4. Evaluate the limit $\lim_{x \to 0} \frac{\arcsin(13x)}{2x}$ using L'Hopital's Rule if necessary.

a. $\frac{2}{13}$
b. 0
c. $\frac{1}{2}$
d. $\frac{13}{2}$
e. does not exist

____ 5. Evaluate the $\lim_{x \to \infty} \frac{5x^2 + 4x - 8}{9x^2 + 9}$ using L'Hôpital's Rule if necessary.

a. $\frac{1}{2}$
b. $-\frac{8}{9}$
c. $\frac{5}{9}$
d. 0
e. ∞

____ 6. Evaluate the $\lim_{x \to \infty} \frac{2x - 6}{4x^2 + 8x + 5}$ using L'Hôpital's Rule if necessary.

a. $\frac{1}{6}$
b. $\frac{1}{4}$
c. $\frac{1}{2}$
d. ∞
e. 0

____ 7. Evaluate the limit $\lim_{x \to \infty} \frac{\ln\left(x^3\right)}{x^{10}}$ using L'Hopital's Rule if necessary.

a. $\frac{10}{3}$
b. ∞
c. $-\infty$
d. $\frac{3}{10}$
e. 0

____ 8. Evaluate the limit $\lim_{x \to 0^+} \frac{\ln\left(x^2\right)}{x^7}$ using L'Hopital's Rule if necessary.

a. $-\infty$
b. ∞
c. $\frac{2}{7}$
d. 0
e. $\frac{7}{2}$

____ 9. Evaluate the limit $\lim_{x \to \infty} 7x \sin\left(\frac{8}{x}\right)$ using L'Hopital's Rule if necessary.

a. $\frac{8}{7}$
b. 56
c. ∞
d. 0
e. does not exist

____ 10. Evaluate the limit $\lim_{x \to 8^+} \left(\frac{21x - 40}{x^2 - 64} - \frac{x}{x - 8} \right)$, using L'Hopital's Rule if necessary.

a. $\frac{3}{16}$

b. $-\frac{3}{8}$

c. $\frac{3}{8}$

d. $-\frac{3}{16}$

e. does not exist

Ch 5 MC Q and A
Answer Section

MULTIPLE CHOICE

1. ANS: B PTS: 1 DIF: Medium REF: Section 5.1
   OBJ: Write a logarithmic expression as a single quantity MSC: Skill
2. ANS: E PTS: 1 DIF: Medium REF: Section 5.1
   OBJ: Write a logarithmic expression as a single quantity MSC: Skill
3. ANS: A PTS: 1 DIF: Medium REF: Section 5.1
   OBJ: Differentiate an equation using implicit differentiation MSC: Skill
4. ANS: C PTS: 1 DIF: Easy REF: Section 5.1
   OBJ: Evaluate a function in applications MSC: Application
5. ANS: C PTS: 1 DIF: Medium REF: Section 5.1
   OBJ: Graph the derivative of a given model MSC: Application
6. ANS: B PTS: 1 DIF: Medium REF: Section 5.1
   OBJ: Evaluate the limit at infinity of the derivative of a model
   MSC: Application
7. ANS: B PTS: 1 DIF: Medium REF: Section 5.2
   OBJ: Evaluate the indefinite integral of a function involving logarithms
   MSC: Skill
8. ANS: A PTS: 1 DIF: Difficult REF: Section 5.2
   OBJ: Evaluate the indefinite integral of a function involving logarithms
   MSC: Skill
9. ANS: D PTS: 1 DIF: Medium REF: Section 5.2
   OBJ: Evaluate the definite integral of a function using a computer algebra system
   MSC: Skill
10. ANS: E PTS: 1 DIF: Easy REF: Section 5.2
    OBJ: Solve a differential equation in applications MSC: Application
11. ANS: A PTS: 1 DIF: Easy REF: Section 5.3
    OBJ: Identify the graph of the inverse of a function MSC: Skill
12. ANS: D PTS: 1 DIF: Easy REF: Section 5.3
    OBJ: Identify the graph of the inverse of a function MSC: Skill
13. ANS: B PTS: 1 DIF: Medium REF: Section 5.3
    OBJ: Recognize invertible functions MSC: Application
14. ANS: B PTS: 1 DIF: Medium REF: Section 5.3
    OBJ: Recognize invertible functions MSC: Application
15. ANS: B PTS: 1 DIF: Easy REF: Section 5.3
    OBJ: Construct the inverse of a function MSC: Skill
16. ANS: D PTS: 1 DIF: Easy REF: Section 5.3
    OBJ: Construct the inverse of a composition of functions MSC: Skill
17. ANS: C PTS: 1 DIF: Easy REF: Section 5.3
    OBJ: Construct the inverse of a composition of functions MSC: Skill
18. ANS: C PTS: 1 DIF: Medium REF: Section 5.4
    OBJ: Solve a logarithmic equation MSC: Skill
19. ANS: D PTS: 1 DIF: Medium REF: Section 5.4
    OBJ: Solve a logarithmic equation MSC: Skill

20. ANS: E PTS: 1 DIF: Medium REF: Section 5.4
OBJ: Differentiate an exponential function using the chain rule
MSC: Skill
21. ANS: E PTS: 1 DIF: Medium REF: Section 5.4
OBJ: Calculate the second derivative of an exponential function
MSC: Skill
22. ANS: D PTS: 1 DIF: Medium REF: Section 5.4
OBJ: Identify all points of inflection for an exponential function
MSC: Skill
23. ANS: A PTS: 1 DIF: Medium REF: Section 5.4
OBJ: Interpret a derivative as a rate of change MSC: Application
24. ANS: B PTS: 1 DIF: Medium REF: Section 5.4
OBJ: Evaluate a derivative at a point in applications MSC: Application
25. ANS: C PTS: 1 DIF: Medium REF: Section 5.4
OBJ: Evaluate the indefinite integral of an exponential function using substitution
MSC: Skill
26. ANS: E PTS: 1 DIF: Medium REF: Section 5.4
OBJ: Evaluate the definite integral of an exponential function using substitution
MSC: Skill
27. ANS: D PTS: 1 DIF: Medium REF: Section 5.4
OBJ: Evaluate the definite integral of an exponential function using substitution
MSC: Skill
28. ANS: D PTS: 1 DIF: Easy REF: Section 5.4
OBJ: Convert a model to exponential form MSC: Application
29. ANS: C PTS: 1 DIF: Medium REF: Section 5.5
OBJ: Solve an exponential equation MSC: Skill
30. ANS: E PTS: 1 DIF: Medium REF: Section 5.5
OBJ: Differentiate a function using logarithmic differentiation
MSC: Skill
31. ANS: A PTS: 1 DIF: Medium REF: Section 5.6
OBJ: Convert an inverse trigonometric expression to an algebraic expression
MSC: Skill
32. ANS: E PTS: 1 DIF: Medium REF: Section 5.6
OBJ: Solve an inverse trigonometric equation MSC: Skill
33. ANS: B PTS: 1 DIF: Easy REF: Section 5.6
OBJ: Differentiate an inverse trigonometric function MSC: Skill
34. ANS: C PTS: 1 DIF: Medium REF: Section 5.6
OBJ: Differentiate an inverse trigonometric function MSC: Skill
35. ANS: B PTS: 1 DIF: Medium REF: Section 5.6
OBJ: Write an equation of a line tangent to the graph of a function at a specified point
MSC: Skill
36. ANS: D PTS: 1 DIF: Difficult REF: Section 5.6
OBJ: Solve an optimization problem in applications MSC: Application
37. ANS: B PTS: 1 DIF: Medium REF: Section 5.7
OBJ: Evaluate the indefinite integral involving an inverse trigonometric function
MSC: Skill

38. ANS: A PTS: 1 DIF: Medium REF: Section 5.7
OBJ: Evaluate the indefinite integral by completing the square
MSC: Skill
39. ANS: B PTS: 1 DIF: Medium REF: Section 5.7
OBJ: Calculate the area bounded by a function MSC: Application
40. ANS: A PTS: 1 DIF: Medium REF: Section 5.7
OBJ: Calculate the area bounded by a function MSC: Application

L' Hopital Practice
Answer Section

MULTIPLE CHOICE

1. ANS: C PTS: 1 DIF: Easy REF: Section 8.7
   OBJ: Evaluate the limit of a function using L'Hopital's Rule if necessary
   MSC: Skill
2. ANS: D PTS: 1 DIF: Easy REF: Section 8.7
   OBJ: Evaluate the limit of a function using L'Hopital's Rule for 0/0 form
   MSC: Skill
3. ANS: C PTS: 1 DIF: Medium REF: Section 8.7
   OBJ: Evaluate the limit of a function using L'Hopital's Rule for 0/0 form
   MSC: Skill
4. ANS: D PTS: 1 DIF: Easy REF: Section 8.7
   OBJ: Evaluate the limit of a function using L'Hopital's Rule for 0/0 form
   MSC: Skill
5. ANS: C PTS: 1 DIF: Easy REF: Section 8.7
   OBJ: Evaluate the limit of a function using L'Hopital's Rule for infinity/infinity form
   MSC: Skill
6. ANS: E PTS: 1 DIF: Easy REF: Section 8.7
   OBJ: Evaluate the limit of a function using L'Hopital's Rule for infinity/infinity form
   MSC: Skill
7. ANS: E PTS: 1 DIF: Easy REF: Section 8.7
   OBJ: Evaluate the limit of a function using L'Hopital's Rule for infinity/infinity form
   MSC: Skill
8. ANS: A PTS: 1 DIF: Easy REF: Section 8.7
   OBJ: Evaluate the limit of a function using L'Hopital's Rule for 0/0 form
   MSC: Skill
9. ANS: B PTS: 1 DIF: Medium REF: Section 8.7
   OBJ: Evaluate the limit of a function using L'Hopital's Rule for 0*infinity form
   MSC: Skill
10. ANS: D PTS: 1 DIF: Medium REF: Section 8.7
    OBJ: Evaluate the limit of a function using L'Hopital's Rule for infinity - infinity form
    MSC: Skill