

Line and max quiz... Name: _____

<p>1) $(1/8)^{-3} =$ <u>8³</u></p>	<p>512</p>
<p>2) If line $y=2x+2.5$ has a perpendicular partner that passes through $(8,-2)$ what is the equation of that partner?</p> <p>$-2 = -1/2(8) + b$ $y = -1/2x + 2$</p> <p>$-2 = -4 + b$</p> <p>$b = 2$</p>	<p>$y = -1/2x + 2$</p>
<p>3) $\log .0001 =$</p>	<p>-4</p>
<p>$T(x) = x - \frac{x^2}{9}$ 4) An hour after x milligrams of a particular drug are given to a person, the rise in body temperature $T(x)$, is given by the function to the left. The model has a critical point of $x=4.5$.</p> <p>a) Is it a maximum, minimum or point of inflection?</p> <p>$4.5 - \frac{(4.5)^2}{9} = 4.5 - \frac{20.25}{9} = 4 - 2.25 = 1.75$</p> <p>$4 - \frac{4^2}{9} = 4 - \frac{16}{9} = 4 - 1.78 = 2.22$</p> <p>$5 - \frac{5^2}{9} = 5 - \frac{25}{9} = 5 - 2.78 = 2.22$</p> <p>b) Why would it matter which it is?</p>	<p>It's a minimum</p> <p>It makes a difference because the doctor would then know how the temperature would change</p>
<p>5) $\log_8 4 = 2/3$ is it true or false</p> <p>$8^{2/3} = 4$</p>	<p>True</p>

$3\sqrt{8^2} = 4$

$3\sqrt{64} = 4$

yes

<p>6) solve for x $\log_5 6 + \log_5 X = \log_5 36$</p> $\log_5 6x = \log_5 36$ $x = 6$	<p>x=</p> <p>6</p>
<p>7) If $f(x) = (x+2)^2$ and $g(x) = 3x$ what is fog or $f(g(x))$</p> $(3x+2)^2 \quad (3x+2)(3x+2)$ $9x^2 + 12x + 4 \quad 6x + 6x$	<p>$9x^2 + 12x + 4$</p>
<p>8) solve for x $\log_2 X = 1/3 \log_2 64$</p> $\log_2 X = \log_2 64^{1/3}$ $x = 4$	<p>4</p>
<p>9) solve for x $10^x = 1000^{x+2}$</p> $\log 10^x = \log 1000^{x+2}$ $x = 3(x+2)$ $x = 3x + 6$ $-2x = 6$ $x = -3$	<p>-3</p>
<p>10) solve for x $2 \log_6 4 - 1/3 \log_6 8 = \log_6 X$</p> $\log_6 16 - \log_6 2 = \log_6 X$ $\log_6 8 = \log_6 X$	<p>8</p>
<p>11) solve for x $2e^x = 56$</p> $\ln 2e^x = \ln 56$ $\ln 2 + x \ln e = \ln 56$ $\ln 2 + x = \ln 56$ $x = \ln 56 - \ln 2$ $x = \ln \frac{56}{2}$ $x = \ln 28$	<p>I would use calculator here but I have one with no e at this moment</p>

12) A cup of coffee is taken out of the microwave oven and placed in a room. The temperature T in degrees Fahrenheit of the coffee after t minutes is modeled by the function $T=70+130e^{-.04855t}$. Find the temperature of the coffee 45 minutes after being removed from the microwave, as predicted by the given function.

$$T = 70 + 130e^{(-.04855)(45)}$$

$$T = 70 + 130e^{2.18475}$$

$$T = 70 + 130(2.718)^{2.18475}$$

$$T = 70 + 130(6.11)$$

$$T = 70 + 14.6 = 84.6$$

84.6° F



13) I found a bank that does continual interest at 2.5%. I put five dollars into an account for my niece who is five. When she is 25 what will the value of the money be?

$$A = Pe^{rt}$$

$$A = 5e^{(.025)(20)}$$

$$A = 5e^{.5}$$

$$A = 5(2.718)$$

$$A = 5(1.65)$$

$$A = 8.24$$

\$ 8.24