Review/Chapter 0:

1) Draw a curve on a Cartesian coordinate system which is not a function. Draw one which is a function.

2) Draw a linear function, a constant function, the absolute value function, and a non-linear function.

3) What value does a function f take where it intersects the x-axis? Where on a graph can I look to find f(0)?

4) What line can I draw on a graph of a function f to show me where f(x)=2? Where on a graph can I look to find f(7)? Draw a picture.

5) $e^3 \cdot e^2 =$

6) $e^3 \cdot e^{-2} =$

7) $\left(e^3\right)^2 =$

8) $e^{3^2} =$

9) $\left(e^3\right)^{\frac{1}{2}} =$
What is another way of writing this answer? (What does the one-half power mean?)

Slopes of Lines:

10) What kind of mathematical object is a slope?

11) What is the slope of the function $y = 4x + 7$?

12) What is the slope of the function $5y - 3 = 15x + 2$?

13) Draw a graph of a function with slope 2 which passes through the origin. Draw a graph of a function with slope $\frac{1}{2}$ which passes through the origin.

14) If I know $(3, 5)$ and $(4, 1)$ are both on the same line, what is the slope of that line? (It may help to draw a graph.)

15) Find an equation of the line in problem (14) in point-slope form and in slope-intercept form. Explain to someone why these forms have the names that they have. Check with a neighbor: is your point-slope equation the same as his or hers? If not, why not? Is your slope-intercept equation the same? If not, why not? Draw a graph of the function and see if the graphs are the same.

Slopes of Curves:

16) Draw a curve on a Cartesian coordinate system which has slope 1 at the point $(1, 1)$.

17) By drawing tangent lines on a graph, find the slope of $f(x) = x^3$ at the points $(0, 0)$, $(1, 1)$ and $(-2, f(-2))$.

18) By drawing tangent lines on a graph, find the slope of $f(x) = x^3 + 2$ at the same points as in question (17). What do you notice?

19) By drawing tangent lines on a graph, find the slope of $f(x) = \frac{1}{2}x^3$ at the same points as in question (17). What do you notice?