What's the Score?

- If you have any difficulty with these solutions, please contact your teacher before continuing.

1. a. This is *not* an exponential function. The exponent is a number, 2, but for an exponential function, the exponent must be a variable. The base is a variable. To be an exponential function, it should be a positive number.

   b. This is an exponential function. The leading coefficient is $\frac{1}{3}$, the base 2 is a positive real number, and the exponent is the variable x.

   c. This is *not* an exponential function. The base is –3, and for an exponential function, the base must be positive.

   d. This is an exponential function. The leading coefficient is –4, the base $\frac{1}{2}$ is a positive real number, and the exponent is the variable x.

2. a. The y-intercept is 7.

   b. The y-intercept is 0.6.

   c. The y-intercept is 5.

3. a. The function is increasing because the b-value, $\frac{3}{2}$, is greater than one.

   b. The function is increasing because the b-value, 5, is greater than one.

   c. The function is decreasing because the b-value, $\frac{1}{4}$, is between zero and one.

4. a. This is an increasing function that extends from Quadrant II to Quadrant I. As the x-values decrease, the graph tends towards the x-axis, and as the x-values increase, the graph tends towards positive infinity. A possible b-value for the function is any real number greater than one.

   b. This is a decreasing function that extends from Quadrant II to Quadrant I. As the x-values decrease, the graph tends towards positive infinity, and as the x-values increase, the graph tends towards the x-axis. A possible b-value for the function is any real number between zero and one.