Problem 1 – Point-Slope Form of the equation

View the description of point-slope form of an equation on page 1.3.

- What does *m* mean?

- How does the ordered pair (x_1, y_1) appear in the equation?

- What is the slope of $y = -2(x + 1) + 3$?

Investigate the graph of the point-slope equation on page 1.6 by changing the sliders one at a time.

- How do the values of m, x_1, and y_1 affect the graph?

- For the equation $y = 4(x - 1) + 3$, what is the slope and a point on the graph?

- For the equation $y - 2 = \dfrac{1}{6}(x - 5)$, what is the slope and a point on the graph?

Problem 2 – Oh, Baby!

Read the problem on page 2.1

- Calculate the slope to find the average rate of change of the child during that year.

- Now write your equation using the slope and one of the pairs.

Graph your equation on the scatter plot on page 2.4.

- Use the **Graph Trace** tool to determine how much the child might weigh at 1.5 years old and at 3 years old.

- How will you know if your estimate is a good one?
- Do children continue to grow at the same rate throughout childhood and into the teenage years?

Problem 3 – Shark attack!

Read the information presented on page 3.1. Have you ever heard of the term "fork length"?

Explain why you think that name was given to that length:

- On page 3.3, use the *Calculator* application to find the slope.

- What is the equation for the sharks' lengths?

Graph your equation on the scatter plot on page 2.4.

- Use the **Graph Trace** tool to make a prediction of the fork length for a 400 cm Thresher shark.

- Do you think that the weight of the shark would be related to the length of the fish? How would it relate?