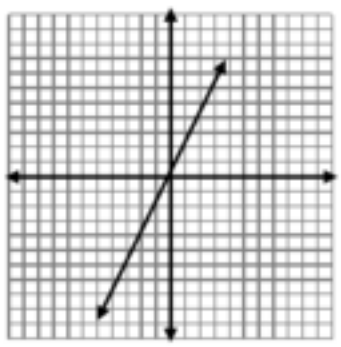
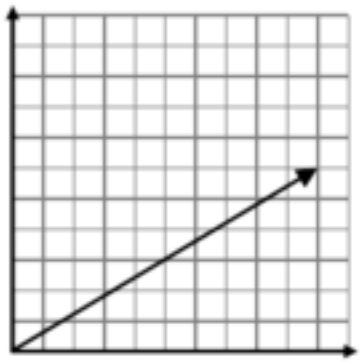
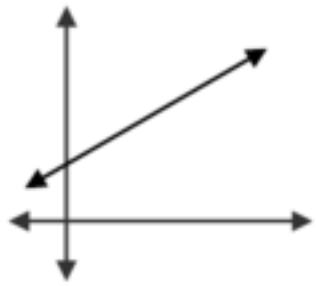
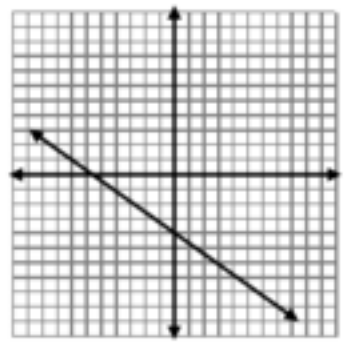
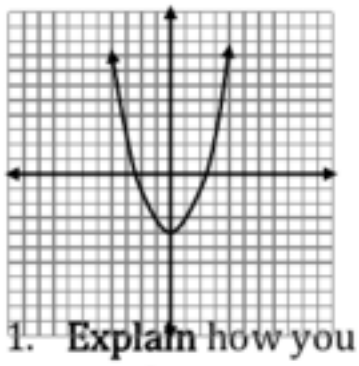
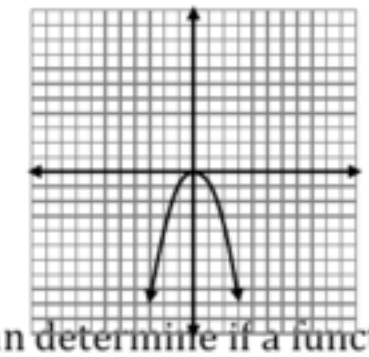
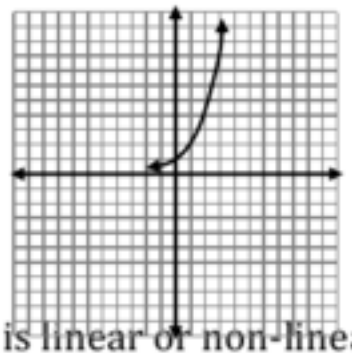
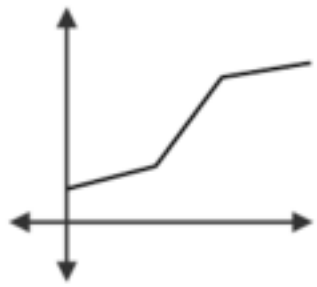
Linear vs. Non-Linear

The functions represented by these graphs are linear.

The functions represented by these graphs are non-linear.

1. **Explain** how you can determine if a function is linear or non-linear by looking at the graph.

By looking at the graphs, if it forms a straight line, then the function is linear

These sequences represent relationships that are linear.

2, 5, 8, 11, . . . 13, 7, 1, -5, -11, . . . 4, 8, 12, 16, 20, . . . 2, 4, 6, 8, . . .

These sequences represent relationships that are non-linear.

2, 4, 8, 16, 32, . . . 1, 4, 9, 16, 25, . . . 100, 95, 85, 70, 50, . . . 1, 1, 2, 3, 5, . . .

2. **Explain** how you can determine if a sequence is linear or non-linear.

If a sequence increases or decreases at a constant rate of change (adds the same amount each time or subtracts the same amount) it is linear.

If the amounts that you add or subtract change each time, it is nonlinear