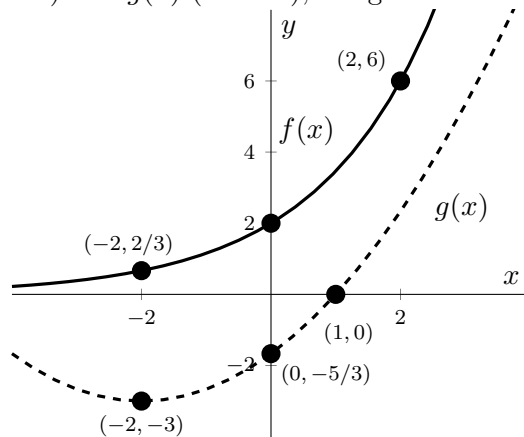


1. [0 points]

Parts of the graphs of two functions, $f(x)$ (solid) and $g(x)$ (dashed), are given below.



The table below contains some information about the functions $p(x)$ and $q(x)$.

| | | | | |
|--------|-----|------|------|----|
| x | -1 | 0 | 1 | 2 |
| $p(x)$ | 0 | 3 | 0 | 5 |
| $q(x)$ | 0.8 | -0.8 | -2.4 | -4 |

Exactly **one** of $f(x)$, $g(x)$, $p(x)$, and $q(x)$ is exponential, exactly one is linear, and exactly one is quadratic.

In the following questions, choose one option and then fill in the blanks with the correct values based on whichever function you chose.

a. [3 points] Which of the functions above is linear? Circle your answer.

$f(x)$ $g(x)$ $p(x)$ $q(x)$

Identify the slope and vertical intercept of the linear function.

Solution:
 Slope: -1.6 Vertical intercept: -0.8

b. [4 points] Which of the functions above is exponential? Circle your answer.

$f(x)$ $g(x)$ $p(x)$ $q(x)$

Identify the initial value, growth factor, and growth rate of the exponential function.

Solution:
 Initial Value: 2 Growth Factor: $\sqrt{3}$ Growth Rate: $\sqrt{3} - 1$

c. [6 points] Which of the functions above is quadratic? Circle your answer.

$f(x)$ $g(x)$ $p(x)$ $q(x)$

Find the zeros, the coordinates of the vertex, and a formula for the function.

Solution:
 Zeros: $x =$ 1 and -4 Vertex: $(-2, -3)$ Formula: $y =$ $\frac{1}{3}(x + 2)^2 - 3$