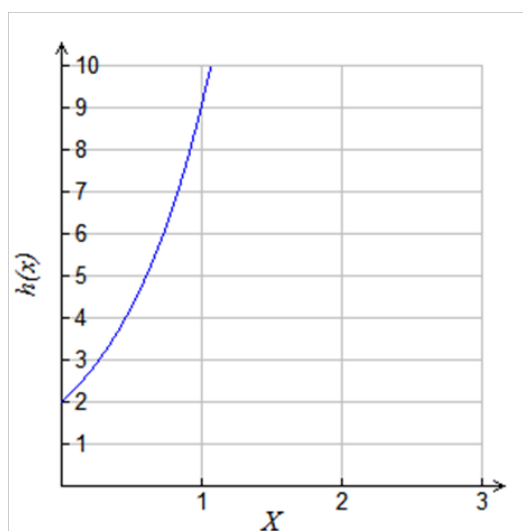


Given the functions $g(x)$, $f(x)$, and $h(x)$ shown below:

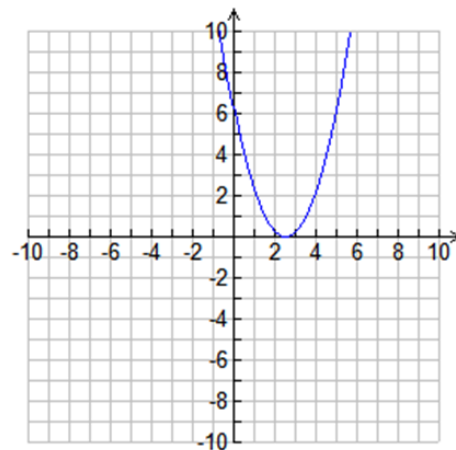
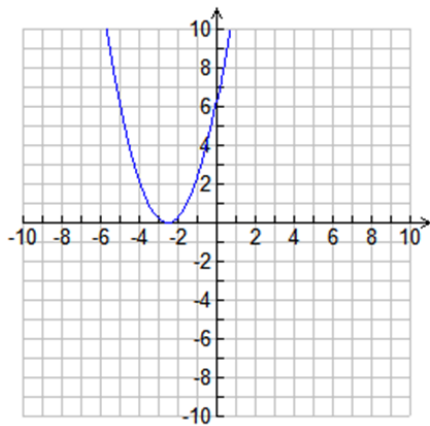
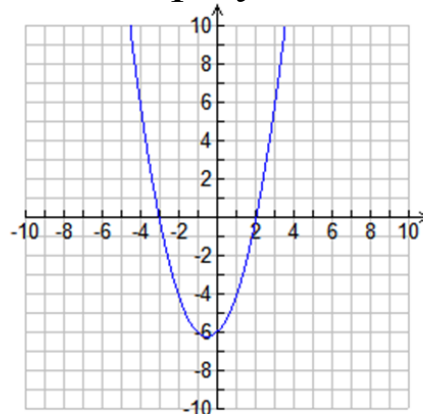
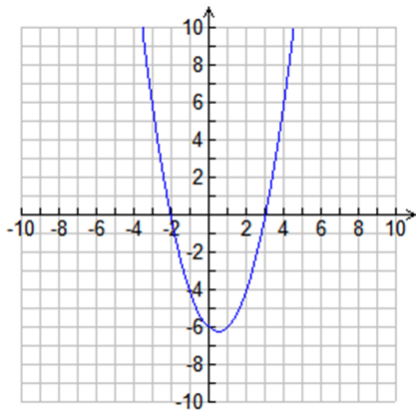
$$g(x) = x^2 - 2x$$

x	$f(x)$
0	1
1	2
2	5
3	7



List the functions in order from greatest to least by average rate of change over the interval $0 \leq x \leq 3$.

The graphs below represent functions defined by polynomials. For which function are the zeros of the polynomials 2 and -3?



For which function defined by a polynomial are the zeros of the polynomial -4 and -6?

a) $y = x^2 - 10x - 24$

b) $y = x^2 + 10x + 24$

c) $y = x^2 + 10x - 24$

d) $y = x^2 - 10 + 24$

The length of the shortest side of a right triangle is 8 inches.

The lengths of the other two sides are represented by consecutive odd integers. Write an equation that could be used to find the lengths of the other sides of the triangle.

Donna wants to make a trail mix made up of almonds, walnuts, and raisins. She wants to mix one part almonds, two parts walnuts, and three parts raisins. Almonds cost \$12 per pound, walnuts cost \$9 per pound, and raisins cost \$5 per pound.

Donna has \$15 to spend on the trail mix. Determine how many pounds of trail mix she can make. (only an algebraic solution will be accepted.)

A high school drama club is putting on their annual theater production. There is a maximum of 800 tickets for the show. The costs of the tickets are \$6 before the day of the show, and \$9 on the day of the show. To meet expenses of the show, the club must sell at least \$5000 worth of tickets.

- a) Write a system of inequalities that represent this situation.

- b) The club sells 440 tickets before the day of the show. Is it possible to sell additional tickets on the day of the show to at least meet the expenses of the show? Justify your answer.

During a snowstorm, a meteorologist tracks the amount of accumulating snow. For the first three hours of the storm, the snow fell at a constant rate of one inch per hour. The storm then stopped for two hours and then started again at a constant rate of one-half inch per hour for the next four hours.

- a) On a grid draw and label a graph that models the accumulation of snow over time using the data the meteorologist collect.

- b) If the snowstorm started at 6PM, how much snow had accumulated by midnight?

Next weekend Marnie wants to attend either carnival A or carnival B. Carnival A charges \$6 for admission and an additional \$1.50 per ride. Carnival B charges \$2.50 for admission and an additional \$2 per ride.

- a) In function notation, write $A(x)$ to represent the total cost of attending carnival A and going on x rides. In function notation, write $B(x)$ to represent the total cost of attending carnival B and going on x rides.
- b) Determine the number of rides Marnie can go on such that the total cost of attending each carnival is the same. (only an algebraic solution will be accepted)
- c) Marnie wants to go on five rides. Determine which carnival would have the lower total cost. Justify your answer.