MASTERY VIEW
Predictive Assessments

Missouri Sample Questions
Algebra I

Assessments will contain selected response items and technology-enhanced items as well as performance events.

Selected Response

1. A delivery driver is traveling a total of 250 miles from a warehouse to a store at an average speed of 45 miles per hour. The function $f(x) = 250 - 45x$ represents the distance remaining, in miles, after traveling for x hours.

Which statement about the value $f(2)$ is true?

A The value $f(2) = 90$, and it represents a remaining distance of 90 miles after 2 hours of traveling.

B The value $f(2) = 90$, and it represents the delivery driver having traveled 90 miles after 2 hours.

C The value $f(2) = 160$, and it represents a remaining distance of 160 miles after 2 hours of traveling.

D The value $f(2) = 160$, and it represents the delivery driver having traveled 160 miles after 2 hours.

2. The table represents the amount of time it takes a person who mows lawns to mow n lawns in one neighborhood.

Number of Lawns, n	Time, T (in minutes)
2	92
3	138
6	276
9	414

What is the average rate of change of the function over the interval $n = 3$ to $n = 9$?

A 23 minutes per lawn

B 46 minutes per lawn

C 138 minutes per lawn

D 276 minutes per lawn

3. Andrew periodically tracks the account balance of his investment account.

Year	Account Balance
2	$\$4,127.89$
4	$\$4,868.41$
5	$\$5,287.10$

The balance of the account can be predicted by the equation $y = 3,500(1.086)^n$, where y represents the amount in the account, and n is the number of years since Andrew opened the account.

Which *two* statements are true?

A Andrew opened the account with $\$3{,}500$.

B Andrew opened the account with $\$4{,}127.89$.

C The account grows about 8.6% each year.

D The account loses about 8.6% each year.

E The account earns $\$384.40$ each year.

Performance Event

4. Coach Hopkins purchases a new machine to launch softballs up in the air to practice catching pop-flies. A softball is launched at an initial upward velocity of 64 feet per second from the new machine on the ground. The function $h(t) = -16t^2 + 64t$ models the height of the ball after t seconds from launch.

Part A

How long will it take for the ball to reach its *maximum* height, in seconds? What will the *maximum* height of the ball be at this time?

Part B

Suppose the softball player misses the catch. *Approximately* how many seconds will it take for the ball to hit the ground?