Additional Problems: Polynomial Functions & Graphs

**Modeling with Polynomials**

**Some problems include the solution. Please remove before sharing with students.**

1. A ball is thrown directly upward from the ground with an initial velocity of 5.5 ft./sec. Represent the height of the ball from the ground seconds after it was thrown upward using the model .

\*\*Solution:

1. A ball is thrown directly upward from the ground with an initial velocity of 7.3 ft./sec. Represent the height of the ball from the ground seconds after it was thrown upward using the model .

\*\*Solution:

1. Use , where is the interest rate paid each year. Write a model polynomial, . Represent the final amount of a 10-year investment if $3,000 was deposited at the beginning of the first year, and $1,500 was deposited at the beginning of the fifth year.

\*\*Solution:

1. Use , where is the interest rate paid each year. Write a model polynomial, . Represent the final amount of a 5-year investment if $4,000 was deposited at the beginning of the first year, and $1,000 was deposited at the beginning of the fourth year.

\*\*Solution:

1. Use , where is the interest rate paid each year. Write a model polynomial, . Represent the final amount of a 6-year investment if $6,000 was deposited at the beginning of the first year, and $3,000 was deposited at the beginning of the second year.

\*\*Solution:

1. The equation represents the relationship between the area in square units and the width of a rectangle whose length is 8 units longer than its width. Select the sentence that describes an accurate relationship between and .

a. has a minimum value at .

b. increases as increases when .

c. increases as increases for *.*

d. has a maximum value at .

\*\*Solution: increases as increases when .

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b. increases as increases when .

c. increases as increases for .

d. has a maximum value at .

\*\*Solution: increases as increases when .

1. Use , where is the interest rate, and the equation . The equation represents the relationship between , the value of the investment after 6 years, and its annual interest rate, . Find the value of the investment account if the interest rate is 4.1%.
2. Use , where is the interest rate, and the equation The equation represents the relationship between , the value of the investment after 4 years, and its annual interest rate, . Find the value of the investment account if the interest rate is 2.65%.
3. Use , where is the interest rate, and the equation The equation represents the relationship between , the value of the investment after 3 years, and its annual interest rate, . Find the value of the investment account if the interest rate is 1.95%.