1. Denisha bought a car for $15,000 and its value depreciated linearly. After 3 years the value was $11,250. What is the amount of yearly depreciation?
   A $2,000  
   B $1,500  
   C $1,250  
   D $750

2. In 1994, the average price of a new domestic car was $16,930. In 2002, the average price was $19,126. Based on a linear model, what is the predicted average price for 2008?
   A $22,969  
   B $21,322  
   C $20,773  
   D $18,577

3. If the graph of a line has a positive slope and a negative y-intercept, what happens to the x-intercept if the slope and the y-intercept are doubled?
   A The x-intercept becomes four times larger.  
   B The x-intercept becomes twice as large.  
   C The x-intercept becomes one-fourth as large.  
   D The x-intercept remains the same.

4. An object is fired upward at an initial velocity, \(v_0\), of 240 ft/s. The height, \(h(t)\), of the object is a function of time, \(t\), in seconds and is given by the formula \(h(t) = v_0 t - 16t^2\). How long will it take the object to hit the ground after takeoff?
   A 16 seconds  
   B 15 seconds  
   C 7.5 seconds  
   D 4 seconds

5. Given \(f(x) = -3x^2 + 5\), what is the range of the function?
   A all real numbers less than or equal to 5  
   B all integers less than or equal to 5  
   C all nonnegative real numbers  
   D all nonnegative integers
6. A store received $823 from the sale of 5 tape recorders and 7 radios. If the receipts from the tape recorders exceeded the receipts from the radios by $137, what is the price of a tape recorder?
   A $49
   B $68
   C $84
   D $96

7. A region is defined by this system:

   \[ \begin{align*}
   y &> 2x + 1 \\
   y &\leq -x - 2
   \end{align*} \]

   In which quadrants of the coordinate plane is the region located?
   A I, II, III only
   B II, III only
   C III, IV only
   D I, II, III, IV

8. When Robert was born, his grandfather invested $1,000 for his college education. At an interest rate of 4.5%, compounded annually, \textit{approximately} how much would Robert have at age 18? (use the formula \( A = P(1 + r)^t \), where \( P \) is the principal, \( r \) is the interest rate, and \( t \) is the time in years)
   A $1,810
   B $2,200
   C $3,680
   D $18,810
9. A new automobile is purchased for $20,000. If \( V = 20,000(0.8)^x \) gives the car’s value after \( x \) years, about how long will it take for the car to be worth half its purchase price?

A 3 years
B 4 years
C 5 years
D 6 years

End of Goal 4 Sample Items

In compliance with federal law, including the provisions of Title IX of the Education Amendments of 1972, the Department of Public Instruction does not discriminate on the basis of race, sex, religion, color, national or ethnic origin, age, disability, or military service in its policies, programs, activities, admissions or employment.
1. **Objective 4.01**
   Use linear functions or inequalities to model and solve problems; justify results.  
a) Solve using tables, graphs, and algebraic properties.  
b) Interpret constants and coefficients in the context of the problem.
   
   **Thinking Skill:** Integrating  
   **Correct Answer:** C

2. **Objective 4.01**
   Use linear functions or inequalities to model and solve problems; justify results.  
a) Solve using tables, graphs, and algebraic properties.  
b) Interpret constants and coefficients in the context of the problem.
   
   **Thinking Skill:** Analyzing  
   **Correct Answer:** C

3. **Objective 4.01**
   Use linear functions or inequalities to model and solve problems; justify results.  
a) Solve using tables, graphs, and algebraic properties.  
b) Interpret constants and coefficients in the context of the problem.
   
   **Thinking Skill:** Analyzing  
   **Correct Answer:** D

4. **Objective 4.02**
   Graph, factor, and evaluate quadratic functions to solve problems.
   
   **Thinking Skill:** Applying  
   **Correct Answer:** B

5. **Objective 4.02**
   Graph, factor, and evaluate quadratic functions to solve problems.
   
   **Thinking Skill:** Analyzing  
   **Correct Answer:** A

6. **Objective 4.03**
   Use systems of linear equations or inequalities in two variables to model and solve problems. Solve using tables, graphs, and algebraic properties; justify results.
   
   **Thinking Skill:** Analyzing  
   **Correct Answer:** D

7. **Objective 4.03**
   Use systems of linear equations or inequalities in two variables to model and solve problems. Solve using tables, graphs, and algebraic properties; justify results.
   
   **Thinking Skill:** Applying  
   **Correct Answer:** B

8. **Objective 4.04**
   Graph and evaluate exponential functions to solve problems.
   
   **Thinking Skill:** Applying  
   **Correct Answer:** B
9. **Objective 4.04**
Graph and evaluate exponential functions to solve problems.

**Thinking Skill:** Applying  
**Correct Answer:** A