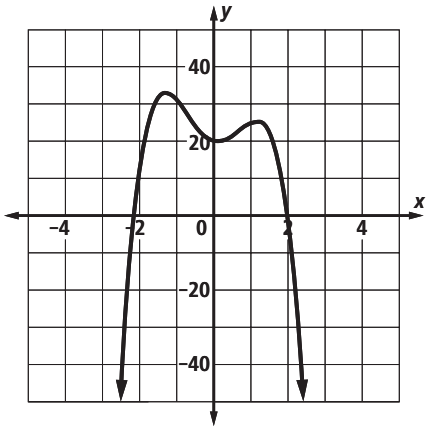
Name

11-8B Lesson Master

Questions on SPUR Objectives
See Student Edition pages 792–795 for objectives.

SKILLS Objective D

1. The graph at the right shows a polynomial of the form $P(x) = ax^4 + bx^3 + cx^2 + dx + e$. It contains the points (–2, 10), (–1, 31), (0, 20), (1, 25), and (2, –2).

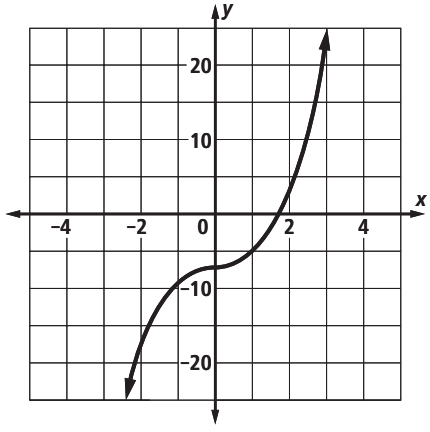


   a. Use the five points to write a system of five equations that can be used to solve for a, b, c, d, and e.

   b. Solve your system to find the coefficients a, b, c, d, and e. Write an equation for $P(x)$.

   c. Verify your answer by using the equation to find $P(2)$ and $P(3)$.

2. The graph at the right shows a polynomial of the form $P(x) = ax^3 + bx^2 + cx + d$. It contains the points (–2, –17), (0, –7), (1, –5), and (2, 3).



   a. Use the four points to write a system of four equations that can be used to solve for a, b, c, and d.

   b. Solve your system to find the coefficients a, b, c, and d. Write an equation for $P(x)$.

   c. Verify your answer by using the equation to find $P(2)$.

   d. Find $P(–1)$.

Name

USES Objective H

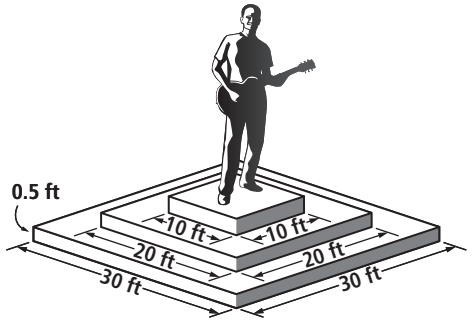
3. A video game starts with one computer-generated opponent in Level 1. As a player completes a level successfully and continues to the next level, not only do the previous level's opponents return, but the last completed level number is multiplied by 3 to determine the number of new opponents that will enter the next level.

   a. Complete the table below.

Level Number (n)	1	2	3	4	5	6
Total Number of Opponents (O)	1	4	10			

   b. How many opponents will appear in Level n? _____

4. A statue is to be erected at the top of a given number of square concrete steps as shown at the right. The top step is 10 ft by 10 ft by 0.5 ft. The second one is 20 ft by 20 ft by 0.5 ft. The third is 30 ft by 30 ft by 0.5 ft. Each additional square step is 10 ft longer on a side.



   a. How many cubic feet of concrete are needed for

      i. the top step? _____

      ii. the 2nd step? _____

      iii. the 3rd step? _____

      iv. the 4th step? _____

      v. the 5th step? _____

   b. Complete the table below. Be sure to give the *total* number of cubic feet of concrete needed.

Number of Steps (n)	1	2	3	4	5
Cubic Feet of Concrete					

   c. Write an equation to model the data.

      _____

   d. Use your equation to predict how many cubic feet of concrete would be needed for 8 steps. _____