

Name \_\_\_\_\_

**11-2B Lesson Master****Questions on SPUR Objectives**  
See Student Edition pages 792–795 for objectives.**SKILLS** Objective A

In 1–8, expand by hand and write in standard form. Check with a CAS.

1.  $3x^2(x^2 - 5x + 2)$

2.  $(2x + 3)(x^2 - x + 2)$

\_\_\_\_\_

\_\_\_\_\_

3.  $(a - 3)(2a^3 - 3a^2)$

4.  $(r^4 - 1)(r^3 - 4r + 3)$

\_\_\_\_\_

\_\_\_\_\_

5.  $(7 - c)^2(2 - c)$

6.  $(4p + q - 7)(p + q + 1)$

\_\_\_\_\_

\_\_\_\_\_

7.  $(x + 5)(x + 3)(x - 1)$

8.  $(x - a)(x - b)(x - c)$

\_\_\_\_\_

\_\_\_\_\_

In 9–11, find the given terms in the standard-form expansion of each polynomial without actually doing the expansion. Check by expanding with a CAS.

9.  $(3a - 2)(2a - 1)(a + 1)$

First term: \_\_\_\_\_ Last term: \_\_\_\_\_

10.  $(x^2 + 5)(x + 3)(2x^3 + 6)$

First term: \_\_\_\_\_ Term with  $x^3$ : \_\_\_\_\_

11.  $(n^2 - 3)(4n + 2)(-\frac{1}{2}n - 8)$

First term: \_\_\_\_\_ Term with  $n^2$ : \_\_\_\_\_**PROPERTIES** Objective EIn 12–15, determine a. whether the polynomial is a *monomial*, *binomial*, *trinomial*, or *none of these*, and b. the degree of the polynomial.

12.  $3x^2 + 2x - 5$

13.  $y^7 - y^3$

a. \_\_\_\_\_ b. \_\_\_\_\_

a. \_\_\_\_\_ b. \_\_\_\_\_

14.  $x^{17}$

15.  $m^5 + 2m^4 - 8m^3 + m - 1$

a. \_\_\_\_\_ b. \_\_\_\_\_

a. \_\_\_\_\_ b. \_\_\_\_\_

In 16–19, give examples of polynomials that meet the description.

16. third-degree monomial: \_\_\_\_\_

\_\_\_\_\_

17. second-degree binomial: \_\_\_\_\_

\_\_\_\_\_

18. first-degree monomial: \_\_\_\_\_

\_\_\_\_\_

19. fifth-degree trinomial: \_\_\_\_\_

\_\_\_\_\_

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**11-2B**

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**USES** Objective I

20. From a sheet of notebook paper 26.7 cm by 20.3 cm, squares of side  $x$  are removed from each corner, forming an open box.

- a. In the space at the right, sketch a diagram of this situation.
- b. Write a formula for the volume  $V(x)$  of the box.

\_\_\_\_\_

c. Write a formula for its surface area  $S(x)$ .

\_\_\_\_\_

21. The height  $h$  of a square prism is 4 in. greater than an edge  $s$  of the base. Give the volume in terms of  $s$ , in standard form. Use the formula for the volume of a square prism:  $V = s^2h$ .

\_\_\_\_\_

22. A food manufacturer wants a can with the largest possible volume using  $30 \text{ in}^2$  of metal.

a. The surface area of a cylinder is  $2\pi r^2 + 2\pi rh = 2\pi r(r + h)$ . Solve the equation  $2\pi r(r + h) = 30$  for  $h$  in terms of  $r$ .

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b. Write a polynomial in terms of  $r$  for the volume of the can. Use the formula for the volume of a cylinder:  $V = \pi r^2h$ .

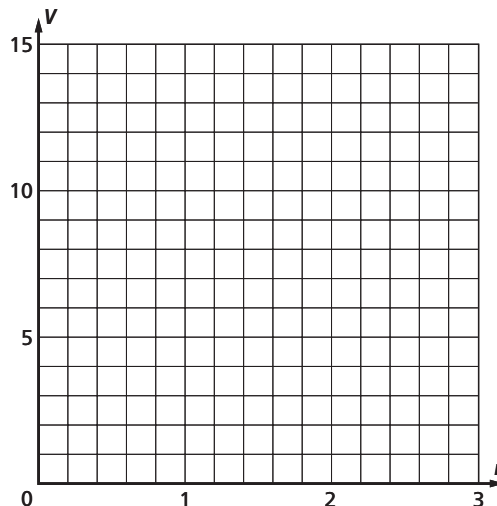
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c. Graph the volume of the can as a function of the radius at the right. Use the graph to find the dimensions that maximize the volume.

$r =$  \_\_\_\_\_

$h =$  \_\_\_\_\_

$V =$  \_\_\_\_\_



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