

## 8-7

## Practice

Form K

## Factoring Special Cases

Factor each expression.

1.  $c^2 + 2c + 1$   
 $(c + 1)^2$

2.  $d^2 - 10d + 25$   
 $(d - 5)^2$

3.  $p^2 - 24p + 144$   
 $(p - 12)^2$

4.  $w^2 + 14w + 49$   
 $(w + 7)^2$

5.  $s^2 + 16s + 64$   
 $(s + 8)^2$

6.  $9g^2 + 24g + 16$   
 $(3g + 4)^2$

7.  $25m^2 - 60m + 36$   
 $(5m - 6)^2$

8.  $4q^2 - 32q + 64$   
 $4(q - 4)^2$

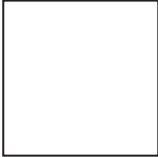
9.  $49y^2 - 84y + 36$   
 $(7y - 6)^2$

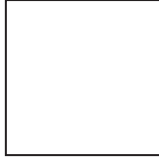
10.  $121n^2 - 66n + 9$   
 $(11n - 3)^2$

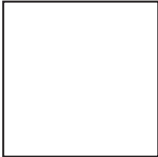
11.  $81x^2 - 18x + 1$   
 $(9x - 1)^2$


12.  $100t^2 - 100t + 25$   
 $25(2t - 1)^2$

The given expression represents the area. Find the side length of the square.

13.   
 $6w + 1$   
 $36w^2 + 12w + 1$

14.   
 $9w - 4$   
 $81w^2 - 72w + 16$

15.   
 $3w - 8$   
 $9w^2 - 48w + 64$

16.   
 $11w - 3$   
 $121w^2 - 66w + 9$

17. **Writing** How can you tell that  $x^2 - 19x + 90$  is not a perfect square trinomial?**Sample:** 90 is not a perfect square.

# 8-7 Practice (continued)

## Factoring Special Cases

Form K

Factor each expression.

18.  $b^2 - 121$

$(b + 11)(b - 11)$

19.  $d^2 - 81$

$(d + 9)(d - 9)$

20.  $f^2 - 625$

$(f + 25)(f - 25)$

21.  $108x^2 - 3$

$3(6x + 1)(6x - 1)$

22.  $50n^2 - 8$

$2(5n + 2)(5n - 2)$

23.  $405z^2 - 245$

$5(9z + 7)(9z - 7)$

24.  $216h^2 - 150$

$6(6h + 5)(6h - 5)$

25.  $28y^2 - 28$

$28(y + 1)(y - 1)$

26.  $50t^2 + 40t + 8$

$2(5t + 2)(5t + 2)$

27.  $12n^2 - 36n + 27$

$3(2n - 3)(2n - 3)$

28.  $180a^2 - 300a + 125$

$5(6a - 5)(6a - 5)$

29.  $250k^2 - 200k + 40$

$10(5k - 2)(5k - 2)$

30. **Writing** Explain how to recognize a difference of two squares.**The expression is the difference of two terms that are both perfect squares.**31. **a. Open-Ended** Write an expression that shows the factored form of a perfect-square trinomial.**Answers may vary. Sample:  $(5x + 3)(5x + 3)$  or  $(5x + 3)^2$** **b.** Explain how you know your expression is a perfect-square trinomial when expanded. **It is in the form  $a^2 + 2ab + b^2$ .****Mental Math** For Exercises 32–34, find a pair of factors for each number by using the difference of two squares.

32. 84 **(14)(6)**

33. 55 **(11)(5)**

34. 80 **(20)(4)**

35. **Writing** The area of a square painting is  $225x^4 + 240x^2 + 64$ . Explain how you would find a possible length of one side of the painting.**Since the trinomial is a perfect-square trinomial, the length of the side could be a factor of the trinomial.**