

8-4

Practice (continued)

Form G

Multiplying Special Cases

Mental Math Simplify each product.

19. 48^2 2304

20. 31^2 961

21. 29^2 841

22. 52^2 2704

23. 63^2 3969

24. 41^2 1681

25. 89^2 7921

26. 199^2 39,601

27. 302^2 91,204

Simplify each product.

28. $(v + 7)(v - 7)$
 $v^2 - 49$

29. $(b + 2)(b - 2)$
 $b^2 - 4$

30. $(z - 9)(z + 9)$
 $z^2 - 81$

31. $(x + 12)(x - 12)$
 $x^2 - 144$

32. $(8 + y)(8 - y)$
 $64 - y^2$

33. $(t - 15)(t + 15)$
 $t^2 - 225$

34. $(m + 1)(m - 1)$
 $m^2 - 1$

35. $(a + 4)(a - 4)$
 $a^2 - 16$

36. $(5 + g)(5 - g)$
 $25 - g^2$

37. $(p + 20)(p - 20)$
 $p^2 - 400$

38. $(f - 18)(f + 18)$
 $f^2 - 324$

39. $(2c + 3)(2c - 3)$
 $4c^2 - 9$

Mental Math Simplify each product.

40. $61 \cdot 59$
3599

41. $27 \cdot 33$
891

42. $202 \cdot 198$
39,996

43. $74 \cdot 66$
4,884

44. $597 \cdot 603$
359,991

45. $85 \cdot 75$
6,375

Simplify each product.

46. $(m + 4n)^2$
 $m^2 + 8mn + 16n^2$

47. $(3a + b)^2$
 $9a^2 + 6ab + b^2$

48. $(6s - t)^2$
 $36s^2 - 12st + t^2$

49. $(s + 7t)^2$
 $s^2 + 14st + 49t^2$

50. $(p^5 - 8q^3)^2$
 $p^{10} - 16p^5q^3 + 64q^6$

51. $(e^4 + f^2)^2$
 $e^8 + 2e^4f^2 + f^4$

52. $(r^2 + 5s)(r^2 - 5s)$
 $r^4 - 25s^2$

53. $(6p^2 + 2q)(6p^2 - 2q)$
 $36p^4 - 4q^2$

54. $(3w^4 - z^3)(3w^4 + z^3)$
 $9w^8 - z^6$

55. **Error Analysis** Describe and correct the error made in simplifying the product.

x terms add to 0 $4x^2 - 49$

~~$(2x - 7)(2x - 7)$
 $= 4x^2 - 28x - 49$~~

56. The formula $V = \frac{4}{3}\pi r^3$ gives the volume of a sphere with radius r . Find the volume of a sphere with radius $x + 9$. Write your answer in standard form.

$$V = \frac{4}{3}\pi x^3 + 36\pi x^2 + 324\pi x + 972\pi$$