Module 13 Solving Quadratic Equations
of One Variable
Lesson 4 Solving Quadratic Equations
by Completing the Square

additional
practice

Complete the square.

1. $x^2 - 6x +$ __9__

2. $x^2 + 10x +$ __25__

3. $z^2 - 9z +$ __$\frac{81}{4}$__

4. $T^2 + 13T +$ __$\frac{169}{4}$__

5. $x^2 -$ __14__$x + 49$

6. $v^2 +$ __30__$v + 225$

Factor.

7. $m^2 + 20m + 100$

__$(m + 10)^2$__

8. $x^2 + 28x + 196$

__$(x + 14)^2$__

9. $x^2 - 15x + \frac{225}{4}$

__$\left(x - \frac{15}{2}\right)^2$__

10. $n^2 - n + \frac{1}{4}$

__$\left(n - \frac{1}{2}\right)^2$__

Solve.

11. $x^2 + 12x = 5$

__$\{-6 + \sqrt{41}, -6 - \sqrt{41}\}$__

12. $y^2 + 16y = -8$

__$\{-8 + \sqrt{56}, -8 - \sqrt{56}\}$__

13. $w^2 - 6w + 3 = 11$

__$\{3 + \sqrt{17}, 3 - \sqrt{17}\}$__

14. $h^2 - 24h + 47 = 2$

__$\{12 + 3\sqrt{11}, 12 - 3\sqrt{11}\}$__

15. $D^2 + 4D - 1 = 0$

__$\{-2 + \sqrt{5}, -2 - \sqrt{5}\}$__

16. $x^2 - 14x + 13 = 0$

__$\{1, 13\}$__

17. $x^2 + 2x = 0$

__$\{0, -2\}$__

18. $M^2 = 10M$

__$\{0, 10\}$__

19. $5n^2 + 2 = 10n + 37$

__$\{1 + 2\sqrt{2}, 1 - 2\sqrt{2}\}$__

20. $6x^2 + 8 = 80 - 24x$

__$\{2, -6\}$__

21. $4w^2 - 12w - 17 = 19$

$$\left\{ \frac{3 - 3\sqrt{5}}{2}, \frac{3 + 3\sqrt{5}}{2} \right\}$$

22. $2x^2 + 10x + 8 = 9$

$$\left\{ \frac{-5 - 3\sqrt{3}}{2}, \frac{-5 + 3\sqrt{3}}{2} \right\}$$

23. $3x^2 + 7x = 13$

$$\left\{ \frac{-7 - \sqrt{205}}{6}, \frac{-7 + \sqrt{205}}{6} \right\}$$

24. $7x^2 + 6x = 9$

$$\left\{ \frac{-3 - 6\sqrt{2}}{7}, \frac{-3 + 6\sqrt{2}}{7} \right\}$$