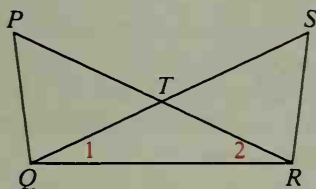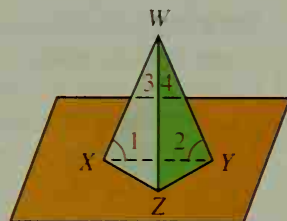**19.** Given: $\angle 1 \cong \angle 2$; $\angle PQR \cong \angle SRQ$

Prove: $\overline{PR} \cong \overline{SQ}$

20. Given: $\angle 1 \cong \angle 2$; $\angle 3 \cong \angle 4$

Prove: $\triangle ZXY$ is isosceles.

Algebra Review: *Quadratic Equations*

Solve each equation by factoring or by using the quadratic formula. The quadratic formula is:

$$\text{If } ax^2 + bx + c = 0, \text{ with } a \neq 0, \text{ then } x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}.$$

Example $3x^2 + 14x + 8 = 0$

Solution 1   *By factoring*

$3x^2 + 14x + 8 = 0$

$(3x + 2)(x + 4) = 0$

$3x + 2 = 0 \quad \text{or} \quad x + 4 = 0$

$x = -\dfrac{2}{3} \quad \text{or} \quad x = -4$

Solution 2   *By quadratic formula*

$3x^2 + 14x + 8 = 0 \qquad a = 3, \, b = 14, \, c = 8$

$x = \dfrac{-b \pm \sqrt{b^2 - 4ac}}{2a} = \dfrac{-14 \pm \sqrt{14^2 - 4(3)(8)}}{2(3)}$

$x = \dfrac{-14 \pm \sqrt{196 - 96}}{6} = \dfrac{-14 \pm 10}{6}$

$x = -\dfrac{2}{3} \quad \text{or} \quad x = -4$

1. $x^2 + 5x - 6 = 0$

2. $n^2 - 6n + 8 = 0$

3. $y^2 - 7y - 18 = 0$

4. $x^2 + 8x = 0$

5. $y^2 = 13y$

6. $2z^2 + 7z = 0$

7. $n^2 - 144 = 25$

8. $50x^2 = 200$

9. $50x^2 = 2$

10. $49z^2 = 1$

11. $y^2 - 6y + 9 = 0$

12. $x^2 - 7x + 12 = 0$

13. $y^2 + 8y + 12 = 0$

14. $t^2 + 5t = 24$

15. $v^2 + 25 = 10v$

16. $x^2 = 3x + 4$

17. $t^2 - t = 20$

18. $y^2 = 20y - 36$

19. $3x^2 + 3x = 4$

20. $15 + 4y^2 = 17y$

21. $x^2 + 5x + 2 = 0$

22. $x^2 + 2x - 1 = 0$

23. $x^2 - 5x + 3 = 0$

24. $x^2 + 3x - 2 = 0$

25. $(y - 5)^2 = 16$

26. $z^2 = 4(2z - 3)$

27. $x(x + 5) = 14$

In Exercises 28–33 x represents the length of a segment. When a value of x doesn't make sense as a length, eliminate that value of x.

28. $x(x - 50) = 0$

29. $x^2 - 400 = 0$

30. $x^2 - 17x + 72 = 0$

31. $2x^2 + x - 3 = 0$

32. $2x^2 - 7x - 4 = 0$

33. $6x^2 = 5x + 6$