8-6 Solving x^2 + bx + c = 0

Factor each polynomial. Confirm your answers using a graphing calculator.

12. $x^2 + 17x + 42$

ANSWER:

$(x + 3)(x + 14)$

13. $y^2 - 17y + 72$

ANSWER:

$(y - 9)(y - 8)$

14. $a^2 + 8a - 48$

ANSWER:

$(a - 4)(a + 12)$

15. $n^2 - 2n - 35$

ANSWER:

$(n - 7)(n + 5)$

16. $44 + 15h + h^2$

ANSWER:

$(h + 4)(h + 11)$

17. $40 - 22x + x^2$

ANSWER:

$(x - 2)(x - 20)$

18. $-24 - 10x + x^2$

ANSWER:

$(x + 2)(x - 12)$

19. $-42 - m + m^2$

ANSWER:

$(m + 6)(m - 7)$

Solve each equation. Check your solutions.

21. $y^2 + y = 20$

ANSWER:

4, −5

23. $a^2 + 11a = -18$

ANSWER:

−2, −9

25. $x^2 - 18x = -32$

ANSWER:

2, 16

27. $d^2 + 56 = -18d$

ANSWER:

−4, −14

29. $h^2 + 48 = 16h$

ANSWER:

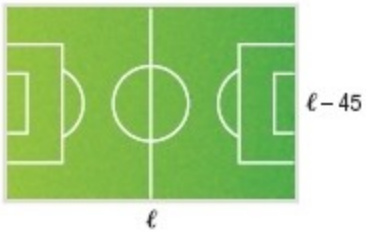
4, 12

31. **GEOMETRY** A rectangle has an area represented by $x^2 - 4x - 12$ square feet. If the length is $x + 2$ feet, what is the width of the rectangle?

ANSWER:

$(x - 6)$ ft

32. **SOCCER** The width of a high school soccer field is 45 yards shorter than its length.



a. Define a variable, and write an expression for the area of the field.

b. The area of the field is 9000 square yards. Find the dimensions.

ANSWER:

a. Let ℓ = length, A = area of the field, $\ell\ (\ell - 45) = A$.

b. 75 yd by 120 yd