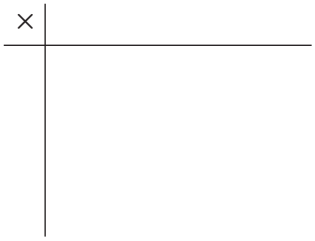
Evaluate: Homework and Practice

- Online Homework
- Hints and Help
- Extra Practice

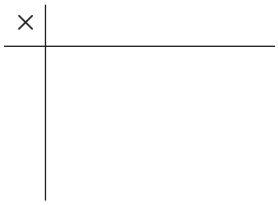
Use algebra tiles to model the factors of each expression.

1. $x^2 + 6x + 8$



$x^2 + 6x + 8 = \left(x \square\right)\left(x \square\right)$

2. $x^2 + 2x - 3$



$x^2 + 2x - 3 = \left(x \square\right)\left(x \square\right)$

Factor the expressions.

3. $x^2 - 15x + 44$

4. $x^2 + 22x + 120$

5. $x^2 + 14x - 32$

6. $x^2 - 12x - 45$

7. $x^2 + 10x + 24$

8. $x^2 + 7x - 8$

Solve each equation.

9. $x^2 + 19x = -84$

10. $x^2 - 18x = -56$

11. $x^2 - 12x + 27 = 0$

12. $x^2 - 9x - 10 = 0$

13. $x^2 + 6x = 135$

14. $x^2 + 13x = -40$

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15. $x^2 + x - 132 = 0$

16. $x^2 - 14x = 32$

17. **Construction** The area of a rectangular fountain is $\left(x^2 + 12x + 20\right)$ square feet. A 2-foot walkway is built around the fountain. Find the dimensions of the outside border of the walkway.

18. The area of a room is 396 square feet. The length is $(x + 3)$, and the width is $(x + 7)$ feet. Find the dimensions of the room.

19. A rectangular Persian carpet has an area of $\left(x^2 + x - 20\right)$ square feet and a length of $(x + 5)$ feet. The Persian carpet is displayed on a wall. The wall has a width of $(x + 2)$ feet and an area of $\left(x^2 + 17x + 30\right)$ square feet. Find the dimensions of the rug and the wall if $x = 20$ feet.

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20. The area of a poster board is $x^2 + 3x - 10$ square inches. Find the dimensions of the poster board if $x = 14$.

21. Match the equation to its solutions.

a. $x^2 - 3x - 18 = 0$ _____ 3 and 6

b. $x^2 - 9x + 18 = 0$ _____ -3 and -6

c. $x^2 + 3x - 18 = 0$ _____ 3 and -6

d. $x^2 + 9x + 18 = 0$ _____ -3 and 6

H.O.T. Focus on Higher Order Thinking

22. Explain the Error Amelie found the solutions of the equation $x^2 - x = 42$ to be 6 and -7. Explain why this answer is incorrect. Then, find the correct solutions.

23. Communicate Mathematical Ideas Rico says the expression $x^2 + bx + c$ is factorable when $b = c = 4$. Are there any other values where $b = c$ that make the expression factorable? Explain.

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