

Factoring Lesson 2

Factoring polynomials works the same way as factoring numbers, by making rectangles.

Recall:



Using these materials we can make rectangles with algebra expressions to factor them:

Example: Factor $2x+4$

The expression $2x+4$ is these materials:



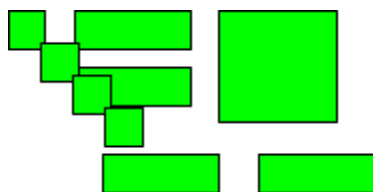
We can make them into the rectangle:



Which tells us that: $2x+4 = 2(x+2)$

Example: Factor $x^2 + 4x + 4$

This expression is the materials



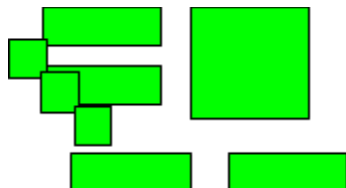
which we can make into the rectangle



This tells us that: $x^2 + 4x + 4 = (x + 2)(x + 2)$

Example: Factor $x^2 + 4x + 3$

This expression is the materials



which we can make into the rectangle



This tells us that: $x^2 + 4x + 3 = (x + 3)(x + 1)$

Factoring Lesson 2 Problems

Factor each of the following using materials, and write the result:

1. $2x + 6$

2. $2x + 8$

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

4. $x^2 + 4x + 4$

Solve using the zero product property

5. $x^2 + 5x + 4 = 0$

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

7. $x^2 + 6x + 9 = 0$

8. $x^2 + 8x + 16 = 0$

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

Additional Exercises Factor

10. $4x + 8$

11. $4x + 10$

Additional Exercises Solve Using the Zero Product Property

12. $x^2 + 11x + 10 = 0$

13. $x^2 + 7x + 10 = 0$

14. $x^2 + 8x = -15$

15. $x^2 + 5x = -6$

16. $2x^2 + 5x + 2 = 0$

17. $3x^2 + 7x + 2 = 0$

18. $4x^2 + 7x + 3 = 0$

Factoring Lesson 2 Problems Solutions

1. $2(x + 3)$
2. $2(x + 4)$
3. $(x + 2)(x + 1)$
4. $(x + 2)(x + 2)$
5. $x^2 + 5x + 4 = (x + 4)(x + 1)$
6. $x^2 + 6x + 5 = (x + 3)(x + 2)$
7. $x^2 + 6x + 9 = (x + 3)(x + 3) = (x + 3)^2$
8. $x^2 + 8x + 16 = (x + 4)(x + 4) = (x + 4)^2$
9. $x^2 + 7x + 12 = (x + 4)(x + 3)$
10. $4(x + 2)$
11. $2(2x + 5)$
12. $x = -1$ or $x = -10$
13. $x = -2$ or $x = -5$
14. $x = -3$ or $x = -5$
15. $x = -3$ or $x = -2$
16. $x = -1/2$ or $x = -2$
17. $x = -1/3$ or $x = -2$
18. $x = -1$ or $x = -3/4$