Expanding and Factoring

High School Math · Grades 8–10 · About 25 minutes · 8 questions

Name _____ Date _____ Score / 8

WHAT YOU WILL PRACTICE

- Expand single and double parentheses and simplify
- Factor by taking out a common factor
- Factor quadratics, including the difference of two squares

WORKED EXAMPLE

Factor $x^2 + 2x - 15$.

1. Find two numbers that multiply to -15 and add to 2.
2. The numbers are 5 and -3, because $5 \times -3 = -15$ and $5 + -3 = 2$.
3. Write the factors: $(x + 5)(x - 3)$.
4. Check by expanding: $x^2 - 3x + 5x - 15 = x^2 + 2x - 15$.

Answer: $(x + 5)(x - 3)$

Questions

Show your work in the space under each question.

1. Expand $4(x + 3)$

2. Expand and simplify $3(2x - 1) + 2(x + 5)$

3. Expand and simplify $(x + 3)(x + 5)$

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4. Expand and simplify $(x - 4)(x + 6)$

5. Expand and simplify $(2x + 1)(x - 3)$

6. Factor $6x + 15$

7. Factor $x^2 + 7x + 12$

8. Factor $x^2 - 49$

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Answers: Expanding and Factoring

Mark your own work, then go back to any question you got wrong before reading the tutor tip.

Q	QUESTION	ANSWER
1	Expand 4(x + 3)	**4x + 12**
2	Expand and simplify 3(2x − 1) + 2(x + 5)	**8x + 7**
3	Expand and simplify (x + 3)(x + 5)	**$x^2 + 8x + 15$**
4	Expand and simplify (x − 4)(x + 6)	**$x^2 + 2x - 24$**
5	Expand and simplify (2x + 1)(x − 3)	**$2x^2 - 5x - 3$**
6	Factor 6x + 15	**3(2x + 5)**
7	Factor $x^2 + 7x + 12$	**(x + 3)(x + 4)**
8	Factor $x^2 - 49$	**(x + 7)(x − 7)**

TUTOR TIP

Always expand your factored answer as a check. It takes ten seconds and catches almost every sign error.

Stuck on a question? Work through it live with a tutor.

YFCampus offers one-to-one online Math tutoring matched to your school curriculum. Book a free trial class at **www.yfcampus.com/us**

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