Expanding and Factoring

Grade 8–10 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/ph**

Written for students aged 13 to 16 and suitable for Grades 8–10. Check your school’s curriculum for the exact order of topics. YFCampus is independent and is not affiliated with any exam board or education ministry.