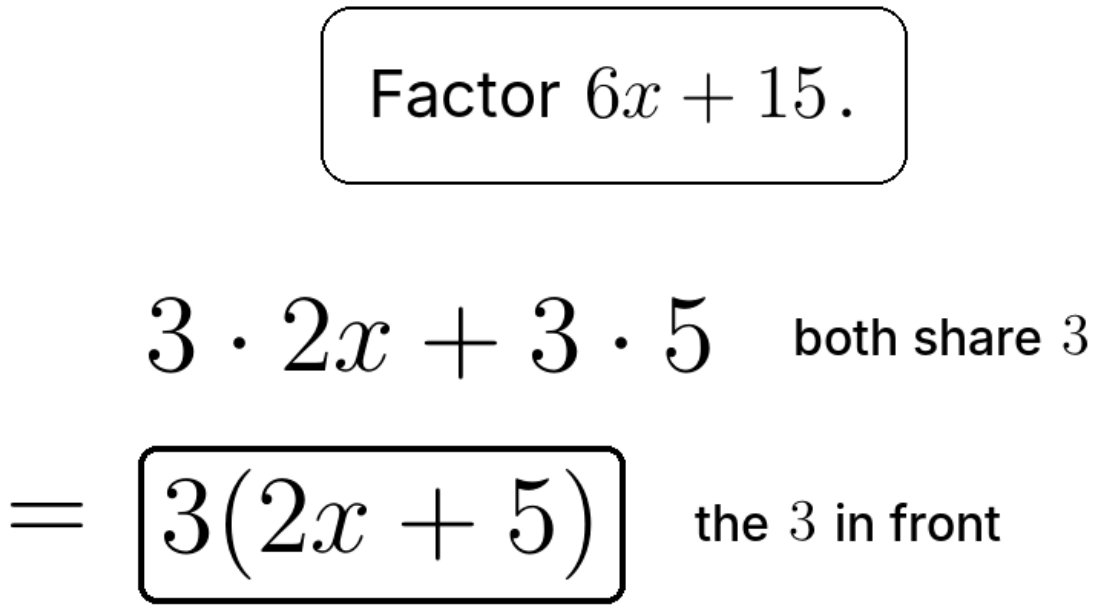
Take Out the Common Factor

EX10-V1 · storyboard · EX10 Factor out the greatest common factor. Read each picture with its sentences.

Picture 1



1. Factor 6x + 15.
2. Six x and fifteen share a factor of three: three times two x, plus three times five.
3. Write the three in front, and what is left in the bracket: 3(2x + 5).

Picture 2

Factor $2a^3 + 16a^2 - 8a$.

The greatest common factor

$$2a$$

$$\boxed{2a(a^2 + 8a - 4)}$$ each term $\div 2a$

Check: $a = 1: \quad 2 + 16 - 8 = 10 = 2 \cdot 5$ ✓

4. Now factor $2a^3 + 16a^2 - 8a$.
5. The numbers two, sixteen and eight share two, and every term has at least one a.
6. So the greatest common factor is 2a.
7. Divide each term by 2a: a^2, then 8a, then −4.
8. So it is $2a(a^2 + 8a - 4)$.
9. Check with a = 1: two plus sixteen minus eight is 10, and two times five is 10 too.

Picture 3

Trap $2a^3 + 16a^2 - 8a$

$\times$ $2(a^3 + 8a^2 - 4a)$ equal, but not finished

✓ $2a(a^2 + 8a - 4)$

10. Watch for the trap: not the greatest factor.
11. Taking out only two gives an answer that is equal, but the bracket still shares a.
12. Take out 2a.

Picture 4

Trap $3x + 3$

$\times$ $3(x)$

✓ $3(x + 1)$

13. And a term that is all factor leaves one.
14. 3x + 3 is not three times x.
15. It is three times the bracket x + 1.