

Factorising by Grouping

Starter

1. (Review of factorising)

Factorise: (a) $8x^2 + 12x$ (b) $15x^2y + 20y$ (c) $y(x + 2) + 7(x + 2)$

Notes

Question 1(c) from the starter is the final step of **factorising by grouping**, which is a method of factorising **4 terms**. It can form part of the process of **factorising quadratics**.

Success criteria – factorising by grouping

1. Factorise each pair of terms, **making sure the bracket is the same**
2. Take the bracket out as a factor — the result is 2 brackets multiplied together.

E.g. 1 Factorise $ac + ad + bc + bd$.

Working: $ac + ad + bc + bd = a(c + d) + b(c + d)$ **factorise 1st/2nd & 3rd/4th***
 $= (c + d)(a + b)$ **take (c + d) out as a factor**
***Make sure the brackets are the same.**

E.g. 2 Factorise $xy + 5y + 2x + 10$.

Working: $xy + 5y + 2x + 10 = y(x + 5) + 2(x + 5)$ **factorise 1st/2nd & 3rd/4th***
 $= (x + 5)(y + 2)$ **take (x + 5) out as a factor**
***Make sure the brackets are the same.**

E.g. 3 Factorise $2x^2 + 6x + 5x + 15$

E.g. 4 Factorise $3x^2 - 18x + x - 6$

E.g. 5 What is the problem with factorising $ac + bd + ad + bc$ by grouping?
What can be done about it?

Video: [Factorising by grouping](#)

[Solutions to Starter and E.g.s](#)

Exercise

9-1 class textbook: p112 E4.2 Qu 1-14
A*-G class textbook: p101 E4.2 Qu 1-14
9-1 homework book: p112 E4.2 Qu 1-12
A*-G homework book: p29 E4.2 Qu 1-10

Summary

Factorising by grouping

1. Factorise each pair of terms, **making sure the bracket is the same**
2. Take the bracket out as a factor.

Homework book answers (only available during a lockdown)