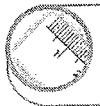


# 11:02 | Grouping in Pairs

Name: \_\_\_\_\_

Class: \_\_\_\_\_

**Examples**

- Pair off the terms, noticing a common factor in each.
- Then look for a common bracket/factor to take out.

Factorise.

$$\begin{aligned} \text{1 } & \underbrace{3d+6}_{\downarrow} + \underbrace{cd+2c}_{\downarrow} \\ & = 3(d+2) + c(d+2) \\ & = (d+2)(3+c) \end{aligned}$$

$\searrow$   
( $d+2$ ) bracket  
is common.

$$\begin{aligned} \text{2 } & x^2 + 6x + x + 6 \\ & = x(x+6) + 1(x+6) \\ & = (x+6)(x+1) \end{aligned}$$

1 is  
common  
factor.

$$\begin{aligned} \text{3 } & b^2 + 5b - 2b - 10 \\ & = b(b+5) - 2(b+5) \\ & = (b+5)(b-2) \end{aligned}$$

Be careful  
of negative.

**Exercise**

1 Complete the following.

- |                     |                     |
|---------------------|---------------------|
| a $3(x+2) + a(x+2)$ | b $2(x+1) - b(x+1)$ |
| c $x(x-3) + 2(x-3)$ | d $q(q+5) - 3(q+5)$ |
| e $m(n-4) + 5(n-4)$ | f $y(y-3) - 1(y-3)$ |
| g $t(u+5) + (u+5)$  | h $a(5-a) + 3(5-a)$ |

2 Factorise.

- |                        |                           |
|------------------------|---------------------------|
| a $am + 5a + 2m + 10$  | b $4y + 12 + by + 3b$     |
| c $9c + 3 + 3cd + d$   | d $8x - 2 + 4xy - y$      |
| e $x^2 + 3x + 4x + 12$ | f $t^2 - 8t + 3t - 24$    |
| g $7m + 14 - mn - 2n$  | h $5j - 15 - jm + 3m$     |
| i $g^2 + 4g + 7g + 28$ | j $k^2 + 5k - 4k - 20$    |
| k $y^2 - 2y + y - 2$   | l $2c^2 - 2c + 4c - 4$    |
| m $3xy + 9x + 6y + 18$ | n $xy - 3x + 7y - 21$     |
| o $ab + ac + bd + cd$  | p $p^2 + 10p + 10p + 100$ |
| q $c^2 + 6c + c + 6$   | r $9 - 3h + 15h - 5h^2$   |
| s $m^2 + 8m - 8m - 64$ | t $q^2 + 7q - q - 7$      |

**Fun Spot 11:02 | What's the biggest moth in the world?**

Factorise each expression, and match its letter with the answer below.

A  $3x - 6$       H  $-3x^2 - 6x$       M  $-3x + 6$       O  $-3x^2 + 6x$       T  $-3x - 6$ 







!

 $3(x-2)$  $3(x-2)$  $3(x-2)$  $3(x-2)$  $3(x-2)$  $3(x-2)$  $3(x+2)$

### 11:02 Grouping in Pairs

- |                  |                 |                 |                  |
|------------------|-----------------|-----------------|------------------|
| 1 a $(x+2)(3+a)$ | b $(x+1)(2-b)$  | c $(x-3)(x+2)$  | d $(q+5)(q-3)$   |
| e $(n-4)(m+5)$   | f $(y-3)(y-1)$  | g $(u+5)(t+1)$  | h $(5-a)(a+3)$   |
| 2 a $(m+5)(a+2)$ | b $(y+3)(4+b)$  | c $(3c+1)(3+d)$ | d $(2+y)(4x-1)$  |
| e $(x+3)(x+4)$   | f $(t-8)(t+3)$  | g $(m+2)(7-n)$  | h $(j-3)(5-m)$   |
| i $(g+4)(g+7)$   | j $(k+5)(k-4)$  | k $(y-2)(y+1)$  | l $(c-1)(2c+4)$  |
| m $(y+3)(3x+6)$  | n $(y-3)(x+7)$  | o $(b+c)(a+d)$  | p $(p+10)(p+10)$ |
| q $(c+6)(c+1)$   | r $(3-h)(3+5h)$ | s $(m+8)(m-8)$  | t $(q+7)(q-1)$   |