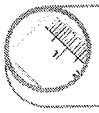
Foundation Worksheet

11:04 | Factorising Trinomials

Name: _____ Class: _____

Examples



- $(x + a)(x + b) = x^2 + (a + b)x + ab$
- To factorise a simple trinomial we reverse this process.

Factorise.

1 $a^2 + 7a + 6$
Need 2 integers that multiply to give 6 and add to give 7, ie 1, 6.
$\therefore (a + 1)(a + 6)$

2 $x^2 - 5x - 24$
Need 2 integers that multiply to give −24 and add to give −5, ie −8, 3.
$\therefore (x - 8)(x + 3)$

3 $t^2 - 9t + 18$
× to give 18
+ to give −9
ie −6, −3
$\therefore (t - 6)(t - 3)$

Exercise

1 Which two integers:
- **a** multiply to give 4 and add to give 5?
- **b** multiply to give −4 and add to give −3?
- **c** multiply to give 16 and add to give −10?
- **d** multiply to give −22 and add to give 9?

2 Factorise.

a $m^2 + 9m + 8$
b $n^2 - 3n + 2$
c $m^2 + 9m - 10$
d $p^2 - 9p + 20$
e $x^2 + 14x + 40$
f $b^2 + 3b + 2$
g $a^2 + 4a + 3$
h $b^2 + b - 6$
i $y^2 - 7y + 12$
j $d^2 + 12d + 32$
k $c^2 + 11c + 18$
l $q^2 - 6q + 9$
m $y^2 - 11y + 30$
n $k^2 - k - 30$
o $x^2 + 13x - 30$
p $t^2 - 4t - 12$
q $x^2 + 15x + 54$
r $n^2 + 11n + 10$
s $y^2 - 7y + 6$
t $a^2 - 5a + 6$
u $d^2 + 5d - 36$
v $x^2 - x - 20$
w $w^2 + 2w - 24$
x $f^2 + 10f + 25$

Fun Spot 11:04 | What kind of cheese do monsters eat?

Factorise, and match the letters with the answers below.

A $x^2 + 4x + 4$ **E** $x^2 - 3x - 4$ **L** $x^2 + 14x + 24$ **M** $x^2 + x - 12$
N $x^2 + 9x + 8$ **O** $x^2 + 9x + 18$ **R** $x^2 - 5x - 50$ **S** $x^2 + 14x + 49$ **T** $x^2 + 5x - 14$

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$(x + 4)(x - 3)$	$(x + 6)(x + 3)$	$(x + 8)(x + 1)$	$(x + 7)^2$	$(x + 7)(x - 2)$	$(x - 4)(x + 1)$	$(x - 10)(x + 5)$	$(x - 4)(x + 1)$	$(x + 2)(x + 12)$	$(x + 2)(x + 12)$	$(x + 2)^2$

11:04 Factorising Trinomials

1 a 1 and 4 b −4 and 1 c −8 and −2 d 11 and −2

2 a $(m+1)(m+8)$ b $(n-1)(n-2)$ c $(m+10)(m-1)$ d $(p-4)(p-5)$

e $(x+10)(x+4)$ f $(b+2)(b+1)$ g $(a+3)(a+1)$ h $(b+3)(b-2)$

i $(y-3)(y-4)$ j $(d+4)(d+8)$ k $(c+9)(c+2)$ l $(q-3)(q-3)$

m $(y-6)(y-5)$ n $(k-6)(k+5)$ o $(x+15)(x-2)$ p $(t-6)(t+2)$

q $(x+9)(x+6)$ r $(n+10)(n+1)$ s $(y-6)(y-1)$ t $(a-2)(a-3)$

u $(d+9)(d-4)$ v $(x-5)(x+4)$ w $(w+6)(w-4)$ x $(f+5)(f+5)$