1 Factorise these expressions completely:

a $4x + 8$ b $6x - 24$ c $20x + 15$
d $2x^2 + 4$ e $4x^2 + 20$ f $6x^2 - 18x$
g $x^2 - 7x$ h $2x^2 + 4x$ i $3x^2 - x$
j $6x^2 - 2x$ k $10y^2 - 5y$ l $35x^2 - 28x$
m $x^2 + 2x$ n $3y^2 + 2y$ o $4x^2 + 12x$
p $5y^2 - 20y$ q $9xy^2 + 12x^2y$ r $6ab - 2ab^2$
s $5x^2 - 25xy$ t $12x^2y + 8xy^2$ u $15y - 20yz^2$
v $12x^2 - 30$ w $xy^2 - x^2y$ x $12y^2 - 4yx$

2 Factorise:

a $x^2 + 4x$ b $2x^2 + 6x$ c $x^2 + 11x + 24$
d $x^2 + 8x + 12$ e $x^2 + 3x - 40$ f $x^2 - 8x + 12$
g $x^2 + 5x + 6$ h $x^2 - 2x - 24$ i $x^2 - 3x - 10$
j $x^2 + x - 20$ k $2x^2 + 5x + 2$ l $3x^2 + 10x - 8$
m $5x^2 - 16x + 3$ n $6x^2 - 8x - 8$
o $2x^2 + 7x - 15$ p $2x^4 + 14x^2 + 24$
q $x^2 - 4$ r $x^2 - 49$
s $4x^2 - 25$ t $9x^2 - 25y^2$ u $36x^2 - 4$
v $2x^2 - 50$ w $6x^2 - 10x + 4$ x $15x^2 + 42x - 9$

Hint For part **n**, take 2 ou
factor first. For part **p**, let

3 Factorise completely:

a $x^3 + 2x$ b $x^3 - x^2 + x$ c $x^3 - 5x$
d $x^3 - 9x$ e $x^3 - x^2 - 12x$ f $x^3 + 11x^2 + 30x$
g $x^3 - 7x^2 + 6x$ h $x^3 - 64x$ i $2x^3 - 5x^2 - 3x$
j $2x^3 + 13x^2 + 15x$ k $x^3 - 4x$ l $3x^3 + 27x^2 + 60x$

(E/P) 4 Factorise completely $x^4 - y^4$. **(2 marks)**

Problem-solving

Watch out for terms that
function of a function, for
$x^4 = (x^2)^2$.

(E) 5 Factorise completely $6x^3 + 7x^2 - 5x$. **(2 marks)**

Challenge

Write $4x^4 - 13x^2 + 9$ as the product of four linear factors.