Factor completely.

$\frac{1}{8}x^2 + \frac{1}{4}x - 3$

$\frac{1}{8}(x^2 + 2x - 24) = \frac{1}{8}(x+6)(x-4)$

-24, $+6$, -4, $+2$

Factor completely. $d^2 + 12d + 36$

36, 6, 6, 12

$(d+6)(d+6)$

$= (d+6)^2$

Books call $d^2 + 12d + 36$ a perfect square trinomial

if $(a+b)^2 = a^2 + 2ab + b^2$

then $a^2 + 2ab + b^2 = (a+b)^2$

factor: $c^2 - 24c + 144$

$(c-12)^2$

$+144$, -12, -12, -24

factor: $\sqrt{9}w^2 + 24w + \sqrt{16}$

$\sqrt{9} = 3$ $\quad \sqrt{16} = 4$ $\quad 24 = 2(3 \cdot 4)$

$(3w + 4)(3w + 4)$

144, 12, 12, 24

	$3w$	$+4$
$3w$	$9w^2$	$+12w$
$+4$	$+12w$	$+16$

factor: $25m^2 - 60m + 36$

$\sqrt{25} = 5$ $\quad \sqrt{36} = 6$

$5 \cdot 6 = 30$

$30 \cdot 2 = 60$

$(5m - 6)^2$

factor.

$P^2 - 3PQ - 10Q^2$

-10, -5, 2, -3

$(P - 5Q)(P + 2Q)$

factor. $A^2 - 7AB + 12B^2$

$+12$, -4, -3, -7

$(A - 4B)(A - 3B)$

factor.

Our book calls this factoring using a quadratic pattern.

$h^4 + 6h^2 - 16 =$ $(h^2+8)(h^2-2)$