展開と因数分解 [乗法公式を利用した因数分解 (2)]

<演習問題>
次の式を因数分解せよ。

(1) $x^2 + 14x + 49$

(2) $x^2 + 6x + 9$

(3) $x^2 + 10x + 25$

(4) $x^2 - 6x + 9$

(5) $x^2 - 8x + 16$

(6) $x^2 - 20x + 100$

(7) $x^2 - 1$

(8) $x^2 - 16$

(9) $x^2 - 36$

(10) $x^2 + 4x + 4$

(11) $x^2 + 16x + 64$

(12) $x^2 + 2x + 1$

(13) $x^2 - 24x + 144$

(14) $x^2 - 18x + 81$

(15) $x^2 - 12x + 36$

(16) $4 - x^2$

(17) $9 - x^2$

(18) $100 - x^2$

＜演習問題＞
次の式を因数分解せよ。

(1)　$x^2 + 14x + 49$

$x^2 + 14x + 49 = x^2 + 2 \times 7 \times x + 7^2$
$= (x + 7)^2$

(2)　$x^2 + 6x + 9$

$x^2 + 6x + 9 = x^2 + 2 \times 3 \times x + 3^2$
$= (x + 3)^2$

(3)　$x^2 + 10x + 25$

$x^2 + 10x + 25 = x^2 + 2 \times 5 \times x + 5^2$
$= (x + 5)^2$

(4)　$x^2 - 6x + 9$

$x^2 - 6x + 9 = x^2 - 2 \times 3 \times x + 3^2$
$= (x - 3)^2$

(5)　$x^2 - 8x + 16$

$x^2 - 8x + 16 = x^2 - 2 \times 4 \times x + 4^2$
$= (x - 4)^2$

(6)　$x^2 - 20x + 100$

$x^2 - 20x + 100 = x^2 - 2 \times 10 \times x + 10^2$
$= (x - 10)^2$

(7)　$x^2 - 1$

$x^2 - 1 = x^2 - 1^2$
$= (x + 1)(x - 1)$

(8)　$x^2 - 16$

$x^2 - 16 = x^2 - 4^2$
$= (x + 4)(x - 4)$

(9)　$x^2 - 36$

$x^2 - 36 = x^2 - 6^2$
$= (x + 6)(x - 6)$

(10)　$x^2 + 4x + 4$

$x^2 + 4x + 4 = x^2 + 2 \times 2 \times x + 2^2$
$= (x + 2)^2$

(11)　$x^2 + 16x + 64$

$x^2 + 16x + 64 = x^2 + 2 \times 8 \times x + 8^2$
$= (x + 8)^2$

(12)　$x^2 + 2x + 1$

$x^2 + 2x + 1 = x^2 + 2 \times 1 \times x + 1^2$
$= (x + 1)^2$

(13)　$x^2 - 24x + 144$

$x^2 - 24x + 144 = x^2 - 2 \times 12 \times x + 12^2$
$= (x - 12)^2$

(14)　$x^2 - 18x + 81$

$x^2 - 18x + 81 = x^2 - 2 \times 9 \times x + 9^2$
$= (x - 9)^2$

(15)　$x^2 - 12x + 36$

$x^2 - 12x + 36 = x^2 - 2 \times 6 \times x + 6^2$
$= (x - 6)^2$

(16)　$4 - x^2$

$4 - x^2 = 2^2 - x^2$
$= (2 + x)(2 - x)$

(17)　$9 - x^2$

$9 - x^2 = 3^2 - x^2$
$= (3 + x)(3 - x)$

(18)　$100 - x^2$

$100 - x^2 = 10^2 - x^2$
$= (10 + x)(10 - x)$