1　素因数分解

次の数を素因数分解しなさい.

(1) 108

(2) 40

(3) 96

(4) 20

(5) 56

(6) 48

(7) 60

(8) 13

(9) 32

(10) 18

(11) 120

(12) 24

(13) 50

(14) 80

(15) 45

(16) 36

(17) 121

(18) 70

(19) 169

(20) 27

2　因数分解/共通因数

次の式を因数分解しなさい.

(1) $x^3 + 8x^2 + 4x$

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

(3) x^2+3x

(4) x^2-6x

(5) $15x^2-35x$

(6) $4x^2-8x$

(7) $2x^2+8x$

(8) $2x^5+12x^4$

(9) $3x^4+3x^3+3x^2$

(10) $6x^3-4x^2$

(11) $6x^4+9x^2$

(12) $2x^3-14x^2$

(13) $4x^5+14x^4$

(14) $4x^5-2x^4$

(15) $6x^4+2x^2$

(16) $6x^4+2x^2$

(17) $9x^7-6x^4$

(18) $6x^4y^2+3x^3y+9x^2y$

(19) $5x^5y^5+10x^4y^3$

(20) $12x^6y^5-4x^5y^3-12x^4y^3$

3　因数分解/乗法公式 1

次の式を因数分解しなさい.

(1) x^2-16

(2) x^2-1

(3) $4x^2 - 49$

(4) $x^2 - 4$

(5) $x^2 - 9$

(6) $x^2 - 81$

(7) $4x^2 - 9$

(8) $16x^2 - 81$

(9) $x^2 - 64$

(10) $4x^2 - 25$

(11) $x^2 - 36$

(12) $x^2 - 25$

(13) $4x^2 - 81$

(14) $9x^2 - 4$

(15) $16x^2 - 1$

(16) $9x^2 - 1$

(17) $16x^2 - 9$

(18) $9x^2 - 25$

(19) $16x^2 - 49$

(20) $x^2 - 49$

4　因数分解/乗法公式 2・3

次の式を因数分解しなさい.

(1) $x^2 + 12x + 36$

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

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

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

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

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

(7) $x^2 - 14x + 49$

(8) $x^2 + 8xy + 16y^2$

(9) $x^2 - 2xy + y^2$

(10) $x^2 - 10xy + 25y^2$

(11) $x^2 + 4xy + 4y^2$

(12) $4x^2 + 28x + 49$

(13) $9a^2 - 6ab + b^2$

(14) $16x^2 - 24x + 9$

(15) $9x^2 - 24x + 16$

(16) $4x^2 - 4x + 1$

(17) $x^2 - 16xy + 64y^2$

(18) $49x^2 + 14x + 1$

(19) $4x^2 + 12x + 9$

(20) $4x^2 - 20x + 25$

(21) $t^2 - 4t + 4$

(22) $16x^2 + 56x + 49$

(23) $9x^2 + 48x + 64$

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

(25) $9x^2 - 30xy + 25y^2$

(26) $4x^2 - 12x + 9$

(27) $x^2 + 12x + 36$

(28) $x^2 + 8x + 16$

(29) $9x^2 + 24x + 16$

(30) $16x^2 - 56x + 49$

5　因数分解/乗法公式 4

次の式を因数分解しなさい.

(1) $x^2 + 7x + 10$

(2) $x^2 + 8x - 9$

(3) $x^2 + 6x - 7$

(4) $x^2 - 6x + 8$

(5) $x^2 - x - 56$

(6) $x^2 - 15x + 56$

(7) $x^2 - x - 20$

(8) $x^2 - 4x - 21$

(9) $x^2 + 7x + 12$

(10) $x^2 - 8x + 15$

(11) $x^2 - 5x + 6$

(12) $x^2 + x - 30$

(13) $x^2 - 8x + 12$

(14) $x^2 - 3x - 4$

(15) $x^2 - 6x - 16$

(16) $x^2 + 13x + 36$

(17) $x^2 - 4x + 3$

(18) $x^2 - 7x - 8$

(19) $x^2 - 9x + 8$

(20) $x^2 + x - 42$

(21) $x^2 - 4x - 5$

(22) $x^2 + 2x - 48$

(23) $x^2 + 4x - 12$

(24) $x^2 + 7x - 8$

(25) $x^2 - 4x - 5$

(26) $x^2 - 12x + 32$

(27) $x^2 + 5x - 24$

(28) $x^2 + 11x + 28$

(29) $x^2 - 3x - 40$

(30) $x^2 - 7x + 6$

(31) $x^2 - 4x - 21$

(32) $x^2 - 13x + 36$

(33) $x^2 + 10x + 9$

(34) $x^2 - 4x + 3$

(35) $x^2 - x - 6$

(36) $x^2 + 7x + 10$

(37) $x^2 - 5xy + 6y^2$

(38) $x^2 - 7xy + 12y^2$

(39) $x^2 - 6xy + 8y^2$

(40) $x^2 + 2xy - 35y^2$

(41) $x^2 - xy - 72y^2$

(42) $x^2 - 12xy + 35y^2$

(43) $x^2 - 12xy + 27y^2$

6　因数分解/いろいろ

次の式を因数分解しなさい.

(1) $2x^2 + 20x + 42$

(2) $2x^2 - 14x + 20$

(3) $-4x^2 + 48x - 140$

(4) $-4x^2 - 56x - 196$

(5) $4x^2 - 64$

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

(7) $3a^2 - 15a + 18$

(8) $-2y^2 + 14y - 20$

(9) $-4y^2 + 16y + 180$

(10) $\frac{2}{3}x^2 + 2x - 12$

(11) $9y^2 - 90y + 189$

(12) $9a^2 + 135a + 504$

(13) $-4x^2y + 256y$

(14) $4x^2y + 12xy + 8y$

(15) $-9x^2y + 72xy - 108y$

(16) $-9x^2y + 54xy - 81y$

(17) $2x^2y - 22xy + 48y$

(18) $-2ab^2 - 28ab - 98a$

(19) $3ab^2 - 27a$

(20) $-4a^2b + 16ab + 20b$

(21) $3x^2 - 24xy + 48y^2$

(22) $2x^2 - 26xy + 84y^2$

(23) $-3x^2 - 21xy - 30y^2$

(24) $3x^2 + 27xy + 24y^2$

(25) $-2x^2 + 18xy - 16y^2$

(26) $3a^2 - 24ab - 27b^2$

(27) $2a^2 - 24ab + 64b^2$

7　因数分解/置き換え

次の式を因数分解しなさい.

(1) $(x-y)^2 + 9(x-y) + 18$

(2) $(x+2y)^2 - 13(x+2y) + 36$

(3) $(x-y)^2+8(x-y)-9$

(4) $(3x-y)^2+7(3x-y)-18$

(5) $(x+y)^2-36$

(6) $(x+y)^2+8(x+y)+16$

(7) $(x+y)^2-7(x+y)+6$

(8) $(2x+y)^2+7(2x+y)-8$

(9) $(x+5y)^2-14(x+5y)+49$

(10) $(x+y)^2-16(x+y)+63$

(11) $(x+y)^2-5(x+y)-24$

(12) $(x-y)^2-(y-x)-6$

(13) $(x-y)^2-6(y-x)-55$

(14) $(x-y)^2-(y-x)-12$

(15) $(x-y)^2+10(y-x)+16$

(16) $(x+3)^2+4(x+3)-32$

(17) $(x-4)^2+7(x-4)+6$

(18) $(2+y)^2+10(2+y)+16$

(19) $(x+6)^2-3(x+6)-18$

(20) $(x^2+3x)^2-2(x^2+3x)-8$

(21) $(x^2-x)^2-8(x^2-x)+12$