

تمرين 01 :

سطر على العامل المشترك في كل حالة

$$A = 3x + 3y$$

$$B = -3a + 3b$$

$$C = 7x + 12x$$

$$D = -6(3x - 2) - (3x - 2)(x - 4)$$

$$E = (x + 2)(x + 1) + (x + 2)(7x - 5)$$

$$F = (2x + 1)^2 + (2x + 1)(x + 3)$$

$$G = (x + 1)(2x - 3) + (x + 1)(5x + 1)$$

$$H = (3x - 4)(2 - x) - (3x - 4)^2$$

$$I = (6x + 4)(2 + 3x) + (2 + 3x)(7 - x)$$

$$J = (3 + x)(5x + 2) + (x + 3)^2$$

تمرين 02 :

حلل ما يلي باستعمال

$$« ka + kb = k(a + b) » :$$

A =	4x + 4y	=	4(x + y)
B =	6 × 9 + 6 × 3	=	
C =	8a + 8b	=	
D =	5 × 3 + 3 × 14	=	
E =	2 + 2x	=	
F =	7a + 7	=	
G =	4x ² + 4x	=	
H =	6y + 6y ²	=	
I =	3x ² + 5x	=	
J =	2ab + b ²	=	

تمرين 03 :

أكمل ما يلي كما في المثال الآتي

A =	4a + 12	=	4 (a + 3)
B =	2x + 6y	=	2 ()
C =	5x ² - 30x	=	5x ()
D =	5(x - 1) + 3x(x - 1)	=	(x - 1) ()
E =	15x - 20y	=	5 ()
F =	-7xy + 14y	=	7y ()
G =	a + 2ax	=	a ()
H =	3x ² + x	=	x ()
I =	7x(x + 3) - 6(x + 3)	=	(x + 3) ()
J =	4xy ² + 12x ² y	=	4xy ()

تمرين 04 :

استخرج العامل المشترك ثم قم بتحليل العبارات الآتية

A =	4a + 12	=	4a + 4 × 3	=	4(a + 3)
B =	5x + 10	=		=	
C =	6x - 24	=		=	
D =	36 - 4x	=		=	
E =	7x + 14	=		=	
F =	35 - 5x	=		=	
G =	8x - 24	=		=	
H =	12x + 18	=		=	
I =	6 - 15x	=		=	
J =	30x - 42	=		=	

تمرين 05 :

حلل العبارات الآتية :

$Z = 5(x + 1) + 3(x + 1)$ $Z = (x + 1)(5 + 3)$ $Z = 8(x + 1)$	$A = 13(x + 2) + 5(x + 2)$	$B = 7(2x - 3) + 2(2x - 3)$
$C = 3x(x + 2) - 5(x + 2)$	$D = 4(x + 3) + 9x(x + 3)$	$E = 7x(3x + 1) - 10x(3x + 1)$

التصحيح

حل التمرين 01 :

$$A = 3x + 3y$$

$$B = -3a + 3b$$

$$C = 7x + 12x$$

$$D = -6(3x - 2) - (3x - 2)(x - 4)$$

$$E = (x + 2)(x + 1) + (x + 2)(7x - 5)$$

$$F = (2x + 1)^2 + (2x + 1)(x + 3)$$

$$G = (x + 1)(2x - 3) + (x + 1)(5x + 1)$$

$$H = (3x - 4)(2 - x) - (3x - 4)^2$$

$$I = (6x + 4)(2 + 3x) + (2 + 3x)(7 - x)$$

$$J = (x + 3)(5x + 2) + (x + 3)^2$$

حل التمرين 02 :

$$A = 4x + 4y = 4(x + y)$$

$$B = 6 \times 9 + 6 \times 3 = 6(9 + 3)$$

$$C = 8a + 8b = 8(a + b)$$

$$D = 5 \times 3 + 3 \times 14 = 3(5 + 14)$$

$$E = 2 + 2x = 2(1 + x)$$

$$F = 7a + 7 = 7(a + 1)$$

$$G = 4x^2 + 4x = 4x(x + 1)$$

$$H = 6y + 6y^2 = 6y(1 + y)$$

$$I = 3x^2 + 5x = x(3x + 5)$$

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

حل التمرين 03 :

$$A = 4a + 12 = 4(a + 3)$$

$$B = 2x + 6y = 2(x + 3y)$$

$$C = 5x^2 - 30x = 5x(x - 6)$$

$$D = 5(x - 1) + 3x(x - 1) = (x - 1)(5 + 3x)$$

$$E = 15x - 20y = 5(3x - 4y)$$

$$F = -7xy + 14y = 7y(-x + 2)$$

$$G = a + 2ax = a(1 + 2x)$$

$$H = 3x^2 + x = x(3x + 1)$$

$$I = 7x(x + 3) - 6(x + 3) = (x + 3)(7x - 6)$$

$$J = 4xy^2 + 12x^2y = 4xy(y + 3x)$$

حل التمرين 04 :

$$A = 4a + 12 = 4a + 4 \times 3 = 4(a + 3)$$

$$B = 5x + 10 = 5x + 5 \times 2 = 5(x + 2)$$

$$C = 6x - 24 = 6x - 6 \times 4 = 6(x - 4)$$

$$D = 36 - 4x = 4 \times 9 - 4x = 4(9 - x)$$

$$E = 7x + 14 = 7x + 7 \times 2 = 7(x + 2)$$

$$F = 35 - 5x = 5 \times 7 - 5x = 5(7 - x)$$

$$G = 8x - 24 = 8x - 8 \times 3 = 8(x - 3)$$

$$H = 12x + 18 = 6 \times 2x + 6 \times 3 = 6(2x + 3)$$

$$I = 6 - 15x = 3 \times 2 - 3 \times 5x = 3(2 - 5x)$$

$$J = 30x - 42 = 6 \times 5x - 6 \times 7 = 6(5x - 7)$$

حل التمرين 05 :

$$Z = 5(x + 1) + 3(x + 1)$$

$$Z = (x + 1)(5 + 3)$$

$$Z = 8(x + 1)$$

$$C = 3x(x + 2) - 5(x + 2)$$

$$C = (x + 2)(3x - 5)$$

$$A = 13(x + 2) + 5(x + 2)$$

$$A = (x + 2)(13 + 5)$$

$$A = 18(x + 2)$$

$$D = 4(x + 3) + 9x(x + 3)$$

$$D = (x + 3)(4 + 9x)$$

$$B = 7(2x - 3) + 2(2x - 3)$$

$$B = (2x - 3)(7 + 2)$$

$$B = 9(2x - 3)$$

$$E = 7x(3x + 1) - 10x(3x + 1)$$

$$E = (3x + 1)(7x - 10x)$$

1- حلل العبارات الآتية كما في المثال الآتي

$Z = (x+1)(x-2) + 5(x+1)$ $Z = (x+1)[(x-2) + 5]$ $Z = (x+1)(x+3)$	$A = (x-3)(2x+1) + 7(2x+1)$	$B = (x+1)(x+2) - 5(x+2)$
$C = (3-x)(4x+1) - 8(4x+1)$	$D = 5(1+2x) - (x+1)(1+2x)$	$E = -6(3x-2) - (3x-2)(x-4)$

2- حلل العبارات الآتية كما في المثال الآتي

$Z = (x+1)(x-2) + (x+1)(x+7)$ $Z = (x+1)[(x-2) + (x+7)]$ $Z = (x+1)(2x+5)$	$A = (x+1)(3-x) + (x+1)(2+5x)$	$B = (x+2)(x+1) + (x+2)(7x-5)$
$C = (x+3)(3-2x) - (x+3)(5+x)$	$D = (2x+1)(x-5) - (3x+1)(2x+1)$	$E = (x-6)(2-x) - (2-x)(3+4x)$

3- حلل العبارات الآتية كما في المثال الآتي

$Z = (x+1)^2 + (x+1)(x+7)$ $Z = (x+1)[(x+1) + (x+7)]$ $Z = (x+1)(2x+8)$	$A = (x+1)^2 + (x+1)(3x+1)$	$B = (2x+1)^2 + (2x+1)(x+3)$
$C = (x-3)^2 - (x-3)(4x+1)$	$D = (x+1)(2x-5) + (2x-5)^2$	$E = (3x-4)(2-x) - (3x-4)^2$

قم بالتغيير في العبارة التي تحتها سطر لاستخراج العامل المشترك ثم قم بالتحليل

$Z = (x-1)(x-2) + (2x-2)(x+7)$ $Z = (x-1)(x-2) + 2(x-1)(x+7)$ $Z = (x+1)[(x-2) + 2(x+7)]$ $Z = (x+1)(x-2+2x+14)$ $Z = (x+1)(3x+12)$	$A = (x+1)(x+2) + (2x+2)(3x-4)$	$B = (x-1)(2x+1) + (6x+3)(3-x)$
$C = (10x-5)(x+2) + (1-x)(2x-1)$	$D = (4x+4)(1-2x) + (x+1)^2$	$E = (2x+1)^2 - (x+3)(10x+5)$

تمرين 01 :

1- حلل العبارات الآتية كما في المثال الآتي

$Z = (x+1)(x-2) + 5(x+1)$ $Z = (x+1) [(x-2) + 5]$ $Z = (x+1)(x+3)$	$A = (x-3)(2x+1) + 7(2x+1)$ $A = (2x+1) [(x-3) + 7]$ $A = (2x+1) [x-3+7]$ $A = (2x+1)(x+4)$	$B = (x+1)(x+2) - 5(x+2)$ $B = (x+2) [(x+1) - 5]$ $B = (x+2) [x+1-5]$ $B = (x+2)(x-4)$
$C = (3-x)(4x+1) - 8(4x+1)$ $C = (4x+1) [(3-x) - 8]$ $C = (4x+1) [3-x-8]$ $C = (4x+1)(-x-5)$	$D = 5(1+2x) - (x+1)(1+2x)$ $D = (1+2x) [5 - (x+1)]$ $D = (1+2x) [5-x-1]$ $D = (1+2x)(4-x)$	$E = -6(3x-2) - (3x-2)(x-4)$ $E = (3x-2) [-6 - (x-4)]$ $E = (3x-2) [-6-x+4]$ $E = (3x-2)(-2-x)$

2- حلل العبارات الآتية كما في المثال الآتي

$Z = (x+1)(x-2) + (x+1)(x+7)$ $Z = (x+1) [(x-2) + (x+7)]$ $Z = (x+1)(2x+5)$	$A = (x+1)(3-x) + (x+1)(2+5x)$ $A = (x+1) [(3-x) + (2+5x)]$ $A = (x+1) [3-x+2+5x]$ $A = (x+1)(5+4x)$	$B = (x+2)(x+1) + (x+2)(7x-5)$ $B = (x+2) [(x+1) + (7x-5)]$ $B = (x+2) [x+1+7x-5]$ $B = (x+2)(8x-4)$
$C = (x+3)(3-2x) - (x+3)(5+x)$ $C = (x+3) [(3-2x) - (5+x)]$ $C = (x+3) [3-2x-5-x]$ $C = (x+3)(-3x-2)$	$D = (2x+1)(x-5) - (3x+1)(2x+1)$ $D = (2x+1) [(x-5) - (3x+1)]$ $D = (2x+1) [x-5-3x-1]$ $D = (2x+1)(-6-2x)$	$E = (x-6)(2-x) - (2-x)(3+4x)$ $E = (2-x) [(x-6) - (3+4x)]$ $E = (2-x) [x-6-3-4x]$ $E = (2-x)(-3x-9)$

3- حلل العبارات الآتية كما في المثال الآتي

$Z = (x+1)^2 + (x+1)(x+7)$ $Z = (x+1) [(x+1) + (x+7)]$ $Z = (x+1)(2x+8)$	$A = (x+1)^2 + (x+1)(3x+1)$ $A = (x+1) [(x+1) + (3x+1)]$ $A = (x+1) [x+1+3x+1]$ $A = (x+1)(4x+2)$	$B = (2x+1)^2 + (2x+1)(x+3)$ $B = (2x+1) [(2x+1) + (x+3)]$ $B = (2x+1) [2x+1+x+3]$ $B = (2x+1)(3x+4)$
$C = (x-3)^2 - (x-3)(4x+1)$ $C = (x-3) [(x-3) - (4x+1)]$ $C = (x-3) [x-3-4x-1]$ $C = (x-3)(-3x-4)$	$D = (x+1)(2x-5) + (2x-5)^2$ $D = (2x-5) [(x+1) + (2x-5)]$ $D = (2x-5) [x+1+2x-5]$ $D = (2x-5)(3x-4)$	$E = (3x-4)(2-x) - (3x-4)^2$ $E = (3x-4) [(2-x) - (3x-4)]$ $E = (3x-4) [2-x-3x+4]$ $E = (3x-4)(6-4x)$

تمرين 02 :

$Z = (x-1)(x-2) + (2x-2)(x+7)$ $Z = (x-1)(x-2) + 2(x-1)(x+7)$ $Z = (x+1) [(x-2) + 2(x+7)]$ $Z = (x+1)(x-2+2x+14)$ $Z = (x+1)(3x+12)$	$A = (x+1)(x+2) + (2x+2)(3x-4)$ $A = (x+1)(x+2) + 2(x+1)(3x-4)$ $A = (x+1) [(x+2) + 2(3x-4)]$ $A = (x+1) [x+2+6x-8]$ $A = (x+1)(7x-6)$	$B = (x-1)(2x+1) + (6x+3)(3-x)$ $B = (x-1)(2x+1) + 3(2x+1)(3-x)$ $B = (2x+1) [(x-1) + 3(3-x)]$ $B = (2x+1) [x-1+9-3x]$ $B = (2x+1)(8-2x)$
$C = (10x-5)(x+2) + (1-x)(2x-1)$ $C = 5(2x-1)(x+2) + (1-x)(2x-1)$ $C = (2x-1) [5(x+2) + (1-x)]$ $C = (2x-1) [5x+10+1-x]$ $C = (2x-1)(4x+11)$	$D = (4x+4)(1-2x) + (x+1)^2$ $D = 4(x+1)(1-2x) + (x+1)^2$ $D = (x+1) [4(1-2x) + (x+1)]$ $D = (x+1) [4-8x+x+1]$ $D = (x+1)(5-7x)$	$E = (2x+1)^2 - (x+3)(10x+5)$ $E = (2x+1)^2 - (x+3) \times 5(2x+1)$ $E = (2x+1) [(2x+1) - (x+3) \times 5]$ $E = (2x+1) [2x+1-5x-15]$ $E = (2x+1)(-3x-14)$