

$$A = 21x - 15; B = 15k^2 + 27k; C = t^2 - 121;$$

$$D = 4a^2 - 49; E = b^2 + 8b + 16; F = 9y^2 + 6y + 1;$$

$$G = p^2 - 14p + 49; H = 64h^2 - 48h + 9.$$

تمرين 8

$$A = (2x+5)(5x+1); B = (7y-5)(5y-3);$$

$$C = (2t-7)(6t+1); D = (5a+4)(a-3).$$

تمرين 9

$$A = 7(2x+3); B = 7y(2y-5);$$

$$C = (a+3)(2a+5); D = (t+8)^2;$$

$$E = (2k+1)^2; F = (h-6)^2;$$

$$G = (3c-7)^2; H = (p-8)(p+8);$$

$$I = (3m+4)(3m-4).$$

تمرين 10

$$A = 21x + 28y; B = 12x - 27; C = 6t^2 + 21t;$$

$$D = a^2 + 12a + 36; E = b^2 + 14b + 49;$$

$$F = 9y^2 + 24y + 16; G = p^2 - 16p + 64;$$

$$H = h^2 - 6h + 9; I = 16m^2 - 40m + 25;$$

$$J = k^2 - 144; K = 4c^2 - \frac{49}{121}; L = 64d^2 - 81.$$

تمرين 11

$$.A = (3x+1)(2x-3) + 6x + 2 :$$

$$.A \quad .1$$

$$.A \quad .2$$

$$.x=2 \quad A \quad .3$$

تمرين 12

$$.B = (5y+7)^2 + (5y+7)(y-8) :$$

$$.B \quad .1$$

$$.B \quad .2$$

$$.y=0 \quad B \quad .3$$

تمرين 13

$$.C = x^2 + 3x - 10 :$$

$$.C = (x-2)(x+5) \quad .1$$

$$.C=0 \quad x \quad .2$$

تمرين 14

$$.D = (a-1)(a+1) + 2(2a+1) + 3 :$$

$$.D \quad .1$$

$$.D \quad .2$$

تمرين 1

$$2(a+b); 3(a+5); 7(3x+5);$$

$$9(x-2); 6(2y-3t); -4(3a+1).$$

تمرين 2

$$3x+3y; 7a-14b; 12x+4y;$$

$$21t-12; 5xy-3xz; 7abc+5ac.$$

تمرين 3

$$A = 5(x+3); B = 2(x-7); C = -13(2x+3);$$

$$D = -11(5x-3); E = \frac{1}{3}(9x-15); F = \frac{7}{4}(12x+5).$$

تمرين 4

$$(a+3)(b+5); (x+y)(z+2);$$

$$(2a+3)(5b+4); (3x+y)(7a+3b).$$

تمرين 5

$$28t+8; 36x-27y; 15a+12b;$$

$$24t-16k; 12xy+15xt-21yt;$$

$$ab+3a+bc+3c; xy+2xt+7y+14t.$$

تمرين 6

$$A = (x+2)^2; B = \left(x + \frac{1}{3}\right)^2; C = \left(x + \frac{2}{7}\right)^2;$$

$$D = (2x+3)^2; E = \left(2x + \frac{1}{4}\right)^2; F = (x-3)^2;$$

$$G = (5-x)^2; H = (3x-2)^2; I = \left(x - \frac{1}{2}\right)^2;$$

$$J = (7-11x)^2; K = \left(2x - \frac{1}{3}\right)^2; L = (x-4)(x+4);$$

$$M = (2x-1)(2x+1); N = (3+5x)(3-5x);$$

$$P = \left(x + \frac{2}{3}\right)\left(x - \frac{2}{3}\right).$$

تمرين 7

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- .15 13 •
- .16 33 32 30 •
- .17 40 37 34 •
- .18 57 •
- .19 70 63 59 58 •
- .20 81 78 •

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تمرين 15

$$.E = (2x+1)^2 - 4(2x+1) :$$

- .E .1
- .E .2
- .x=1 E .3

تمرين 16

$$.F = (x+3)(2x-1) - 2(x+3) :$$

- .F .1
- .F .2
- .x=3 F .3

تمرين 17

$$. \quad d \quad c \quad b \quad a$$

- .1 $a(b-c) + b(c-a) + c(a-b) = 0$
- .2 $(a+b)^2 + (a-b)^2 = 2(a^2 + b^2)$
- .3 $(a+b)^2 - (a-b)^2 = 4ab$
- .4 $(a+b+c)^2 = a^2 + b^2 + c^2 + 2(ab+bc+ca)$
- .5 $(a+b)^3 = a^3 + 3a^2b + 3ab^2 + b^3$
- .6 $(a-b)^3 = a^3 - 3a^2b + 3ab^2 - b^3$
- .7 $a^3 + b^3 = (a+b)(a^2 - ab + b^2)$
- .8 $a^3 - b^3 = (a-b)(a^2 + ab + b^2)$
- .9 $(a^2 + b^2)(c^2 + d^2) = (ac + bd)^2 + (ad - bc)^2$

تمرين 18

$$.ab + bc + ca = 0 : \quad c \quad b \quad a$$

- .1 $(a+b+c)^2 = a^2 + b^2 + c^2$
- .2 $\frac{b+c}{a} + \frac{c+a}{b} + \frac{a+b}{c}$

تمرين 19

$$.a^2 - b^2 \neq 0 : \quad b \quad a$$

- .1 $\frac{a}{a-b} - \frac{b}{a+b} = \frac{a^2 + b^2}{a^2 - b^2}$
- .2 $\frac{a+b}{a-b} - \frac{a-b}{a+b} = \frac{4ab}{a^2 - b^2}$
- .3 $\frac{a+b}{a-b} + \frac{a-b}{a+b} = 2 \left(\frac{a}{a-b} - \frac{b}{a+b} \right)$

تمرين 20

$$\left(1 - \frac{1}{2^2}\right) \left(1 - \frac{1}{3^2}\right) \left(1 - \frac{1}{4^2}\right) \dots \left(1 - \frac{1}{n^2}\right) = \frac{n+1}{2n}$$