*التمرين الأول :*

1) احسب : $A = (-\sqrt{2}) \times \left(-\frac{5}{3}\right) \times \pi \times (-\sqrt{2}) \times \frac{3}{5}$ , $B = \frac{1}{\sqrt{3}} \times (-3) \times \sqrt{3} \times \left(-\frac{2}{9}\right) \times \pi \times \frac{3}{4}$

$C = (-7) \times \sqrt{3} \times (-3) \times (-1) \times \frac{1}{7} \times \frac{1}{3}$ , $D = 2\sqrt{2} \times \frac{3}{2} \times \sqrt{2}$ , $E = \left(\frac{1}{3}\sqrt{3}\right) \times (-3\sqrt{3})$

2) احسب : $A = \pi \times \frac{1}{5} \times \left(\frac{-1}{3\pi}\right) \times 1$ , $B = (-5\sqrt{2}) \times \left(\frac{2}{5}\sqrt{2}\right)$ , $C = (-3) \times \sqrt{2} \times \left(\frac{-1}{3}\right) \times 2\sqrt{2}$

$D = \left(-\frac{3}{2}\right) \times \sqrt{2} \times \left[\frac{2}{15} \times (-2\sqrt{2})\right]$ , $E = (\sqrt{5}) \times \frac{2}{5} \times \frac{3}{4}\left(-\frac{1}{\sqrt{5}}\right) \times 2,5$ , $F = \pi \times \frac{1}{5} \times 15 \times \frac{1}{\pi}$

$G = \left(-\frac{3}{4}\right) \times \sqrt{2} \times \left(-\frac{4}{5}\right)$ , $H = \frac{7}{2} \times (-\sqrt{2}) \times \frac{5}{14} \times \sqrt{2}$ , $K = \left(7\sqrt{5} \times \frac{1}{3}\right) \times (-3\sqrt{2} \times \sqrt{5})$

*التمرين الثاني :*

1) انشر ثم اختصر $\sqrt{3}(\sqrt{3} + 2)$ , $-\sqrt{2}(3 - \sqrt{2})$ , $\sqrt{5}(\sqrt{5} + 5)$ , $-3(\sqrt{2} - \pi)$ , $(2 + \sqrt{3})\pi$

2) انشر ثم اختصر : $A = 3\sqrt{5} \times (\sqrt{5} + 2) - 5(3 - \sqrt{5})$ , $B = 2 - \sqrt{2}(\sqrt{2} - 1) - 2(\sqrt{2} + 1)$

$C = (\sqrt{3} - 1) \times \sqrt{3} - 2\sqrt{3}\left(\frac{-1}{2} + 3\sqrt{3}\right)$ , $D = -3 + \sqrt{3}(\sqrt{3} + 1) - \sqrt{2}(2 - \sqrt{2})$

$E = \frac{3}{5}\sqrt{11} - 7(\sqrt{11} + 5\sqrt{5}) - 2\sqrt{5}$ , $F = (1 - 3\sqrt{2}) + 5(2 - \sqrt{2})$

$G = \sqrt{3}(5 - \sqrt{3}) + 4\sqrt{3}$ , $H = \sqrt{3}(1 - \sqrt{3}) - (2 + \sqrt{3})\sqrt{3}$ , $K = \sqrt{2} \times (1 - \sqrt{2}) + \sqrt{2}$

$L = (1 - 3\sqrt{2}) \times 8 - 5(2 - \sqrt{2})$ , $M = -2\sqrt{3}(8 - 3\sqrt{3}) + 7(2\sqrt{3} - 1) \times \frac{3}{7}$

*التمرين الثالث :* فكك إلى جذاء عوامل

$A = \sqrt{2}x - \sqrt{3}x$ , $B = \sqrt{3}x + \sqrt{3}xy$ , $C = 3x^2y + 6xy$ , $D = \sqrt{5}x^2 - (\sqrt{5})^2 x$

$E = 3\sqrt{2}x^2 - 2x$ , $F = (2x - 5)(3x - 2) + 3x - 2$ , $G = (4x - 1)(2x + 1) + 4(2x + 1)$

$H = (8x - 6)x + (4x - 3)(x + 1)$ , $K = (x + 1)(x + 2) + (x + 1)(x + 3)$ , $L = $

$2x(x - 5) + (3x - 4)(x - 5)$ , $F = (2x - 5)(3x - 2) + 3x - 2$

*التمرين الرابع :* انشر ثم اختصر العبارات التالية : $a = -2\left(\frac{\sqrt{3}}{2} - 1\right) + \sqrt{3}(3 - \sqrt{3})$ ,

$b = 5(\sqrt{2} + 1) - 2\sqrt{2}(5\sqrt{2} +)$ , $c = 2\sqrt{5}(\sqrt{5} + 1) - 3\sqrt{5}$ ,

$$e = \frac{1}{2} \times (\sqrt{3} - 1) \times (\sqrt{3} + 1) \quad , \quad d = (\sqrt{2} - 1) \times \sqrt{2} - (\sqrt{2} + 1)(1 - \sqrt{2})$$

$$k = (\sqrt{5} - 5)\left(\sqrt{5} - \frac{1}{5}\right) \ , \ g = (\sqrt{3} - 2)(\sqrt{3} + 5) \ , \quad f = (\sqrt{2} + 3)(\sqrt{2} + 1)$$

$$n = (3 - \sqrt{5})(2 - \sqrt{5}) \ , \ m = (\sqrt{3} + 1) \times (\sqrt{3} + 1) \ , \ l = (-\sqrt{2} - \sqrt{3})(\sqrt{2} - \sqrt{3}) \ .$$

التمرين الخامس : فكك العبارات التالية إلى جذاء عوامل : $a = 3x(2x - 1) + 5(2x - 1)$

$$c = (x\sqrt{2} - 1)(x\sqrt{3} + 2) - x\sqrt{2} + 1 \ ; \ b = (x - 5)(x + 1) + (2x - 3) - 9x + 6$$

$$e = (3x - 4)(2x - 5) - (4 - 3x)(2x + 5) \ ; \quad d = (2x + 1)(x - 3) + (-2x - 1)(3x + 2)$$

التمرين السادس : انشر ثم اختصر $(\sqrt{3} + 3)(\sqrt{3} + 2)$ , $(2 - \sqrt{2})(3 - \sqrt{2})$ , $(\sqrt{5} - 3)(\sqrt{5} + 5)$

$$(2 - \sqrt{7})(3 + \sqrt{7}) \ , \ (\sqrt{5} + 3)(5 + 2) \ , \ (2 + \sqrt{3})(3 - \sqrt{3}) \ , \ (\sqrt{7} - 3)(\sqrt{7} - 2)$$

$$(2 - \sqrt{3})(3 - \sqrt{3}) \ , \quad (\sqrt{5} - 3)(\sqrt{5} - 2) \ , \quad (\sqrt{6} + 3)(\sqrt{6} + 5) \ .$$

التمرين السابع : انشر ثم اختصر: $A = (3 + \sqrt{5})(\sqrt{5} + 2) - (5 + \sqrt{5})(3 - \sqrt{5})$

$$C = (\sqrt{3} - 1)(\sqrt{3} - 1) - (2 + \sqrt{3})(1 + \sqrt{3}) \ , \ B = (2 - \sqrt{2})(\sqrt{2} - 1) - (2 + \sqrt{2})(\sqrt{2} + 1)$$

$$E = (1 - \sqrt{2})(2 - \sqrt{2}) - (1 - \sqrt{2})(1 - \sqrt{2}) \ , \ D = (-3 + \sqrt{3})(\sqrt{3} + 1) - (\sqrt{2} + 2)(2 - \sqrt{2})$$

$$G = (\sqrt{3} - 7)(1 - \sqrt{3}) - (2 + \sqrt{3})(\sqrt{3} - 4) \ , F = (1 - \sqrt{3})(5 - \sqrt{3}) - (\sqrt{3} + 2)(4 + \sqrt{3})$$

التمرين الثامن : انشر ثم اختصرالعبارات التالية حيث $x$ عدد حقيقي : $A = 3x(2x + 2) - 5(3 - x)$

$$C = (x - 1)(x - 1) - (2 + x)(1 + x) \quad , \qquad B = (2 - x)(3x - 1) - (2 + x)(x + 1)$$

$$E = (x - \sqrt{2})(x - \sqrt{2}) - (1 - x)(1 - x) \ , \ D = (-x + \sqrt{3})(\sqrt{3} + x) - (\sqrt{3} + x)(x - \sqrt{3})$$

$$G = (2x - 5)(3x - 2) + 2x(3x - 2) \qquad , \qquad F = (1 - 2x)(5 - 3x) - (x + 2)(4 + 2x)$$

$$K = (8x - 6)x - (4x - 3)(x + 1) \qquad , \qquad H = (4x - 1)(2x + 1) + 4(2x + 1)$$