

الجذور المربعة

التمرين 1: أكتب ما يلي على الشكل $a\sqrt{b}$ مع a و b عدنان صحيحان:

$$b = 2 ; A = 2\sqrt{72} - \sqrt{200}$$

$$b = 3 ; B = \sqrt{27} + 7\sqrt{75} - \sqrt{300}$$

$$b = 3 ; C = \sqrt{27} + 2\sqrt{75} - 4\sqrt{3}$$

$$b = 3 ; D = \sqrt{12} - 3\sqrt{75} + 2\sqrt{3} + 5\sqrt{27}$$

$$b = 3 ; E = \sqrt{5} \times \sqrt{15}$$

$$b = 5 ; F = \sqrt{500} - 7\sqrt{45} - \sqrt{80}$$

$$b = 5 ; G = \sqrt{45} - \sqrt{5}$$

$$b = 3 ; I = \sqrt{12} - \sqrt{75} - 2\sqrt{27}$$

$$b = 3 ; K = \sqrt{3} + 3\sqrt{27}$$

$$b = 3 ; J = 6\sqrt{12} - \sqrt{27} + \sqrt{192}$$

$$b = 5 ; L = 4\sqrt{2} \times \sqrt{90}$$

$$b = 5 ; M = 2\sqrt{5} + 2\sqrt{125} - 7\sqrt{45}$$

$$b = 3 ; H = (6 + 2\sqrt{3})^2 - (4\sqrt{3})^2$$

$$b = 7 ; N = 6\sqrt{28} + 10\sqrt{7} - 8\sqrt{63}$$

ملاحظة: لقد تم منحكم العدد b في كل سؤال ولم يبق لكم إلا تحديد العدد a .

التمرين 2: أكتب ما يلي على الشكل $a\sqrt{b}$ مع a و b عدنان صحيحان:

$$A = \sqrt{50}$$

$$B = \sqrt{72}$$

$$C = \sqrt{300}$$

$$D = \sqrt{16} + \sqrt{9} - \sqrt{25}$$

$$E = \sqrt{50} + \sqrt{72}$$

$$F = \sqrt{8} + \sqrt{50} - \sqrt{18}$$

$$G = 2\sqrt{12} - \sqrt{27}$$

$$H = 2\sqrt{3} \times \sqrt{6}$$

$$I = \sqrt{21} \times \sqrt{14}$$

$$J = 7\sqrt{6} - 2\sqrt{24} + 5\sqrt{54}$$

$$K = 2\sqrt{3} + \sqrt{75} - 6\sqrt{27}$$

$$L = 3\sqrt{50} - \sqrt{18} + 4\sqrt{8}$$

$$M = 3\sqrt{54} + 2\sqrt{24} - 5\sqrt{96}$$

$$N = -4\sqrt{18} + \sqrt{128} - 3\sqrt{32}$$

$$O = 5\sqrt{3} - 2\sqrt{48} + 2\sqrt{27}$$

$$P = \sqrt{15} \times \sqrt{10}$$

$$Q = 5\sqrt{27} - 2\sqrt{75} + 3\sqrt{3}$$

$$R = 2\sqrt{75} \times \sqrt{6}$$

$$S = 3\sqrt{20} + \sqrt{45} - \sqrt{180}$$

$$T = \sqrt{12} + 4\sqrt{75} - 6\sqrt{48}$$

$$U = \sqrt{98} - 2\sqrt{50} + 3\sqrt{8}$$

$$V = \sqrt{20} - 4\sqrt{45} + \sqrt{180}$$

$$W = \sqrt{500} + 3\sqrt{5} - 3\sqrt{45}$$

$$X = 5\sqrt{6} \times 2\sqrt{3}$$

$$Y = \sqrt{75} + 7\sqrt{3} - 2\sqrt{27}$$

$$Z = \sqrt{8} \times \sqrt{50} \times \sqrt{18}$$

$$AA = \sqrt{75} - 2\sqrt{12} + 2\sqrt{27}$$

$$AB = 2\sqrt{32} - \sqrt{50}$$

$$AC = 5\sqrt{12} - \sqrt{3} + \sqrt{27}$$

$$AD = \sqrt{20} - \sqrt{125} + 2\sqrt{245}$$

$$AE = \sqrt{45} + 2\sqrt{80} - \sqrt{5}$$

$$AF = 7\sqrt{15} \times 2\sqrt{35} \times \sqrt{3}$$

$$AG = (2 - 3\sqrt{5})(15 + 2\sqrt{5})$$

$$AH = 2\sqrt{32} - \sqrt{18} + \sqrt{8}$$

$$AI = \sqrt{200} - 4\sqrt{3} \times \sqrt{6}$$

$$AJ = 3\sqrt{75} + 2\sqrt{3} - 2\sqrt{48}$$

$$AK = \sqrt{45} - 7\sqrt{5} + \sqrt{20}$$

$$AL = \sqrt{500} - 2\sqrt{5} + 3\sqrt{20}$$

$$AM = -5\sqrt{54} + 3\sqrt{150} - \sqrt{96}$$

$$AN = \sqrt{75} - \sqrt{12}$$

$$AO = 7\sqrt{75} - 5\sqrt{27} + 4\sqrt{48}$$

$$AP = \sqrt{8} \times \sqrt{50} \times \sqrt{18}$$

$$AQ = \sqrt{18} + \sqrt{50} + \sqrt{18}$$

$$AR = \sqrt{6} \times \sqrt{42}$$

$$AS = 2\sqrt{18} - 3\sqrt{50} + 100\sqrt{2}$$

$$AT = 2\sqrt{12} - 5\sqrt{27} + 7\sqrt{75}$$

$$AU = (\sqrt{2} + \sqrt{3})^2 - 5$$

$$AV = \sqrt{7} - 7\sqrt{700} + \sqrt{28}$$

$$AW = 7\sqrt{3} - 3\sqrt{48} + 5\sqrt{12}$$

$$AY = \sqrt{\frac{5}{27}} \times \sqrt{3}$$

$$AZ = \sqrt{36 + 64}$$

$$BA = (6\sqrt{2})^2 + 3$$

$$BB = (\sqrt{5} + 1)(\sqrt{5} - 1)$$

$$BC = \sqrt{15} \times \sqrt{10}$$

$$BD = 3\sqrt{27} - \sqrt{12}$$

$$BE = 3\sqrt{28} - \sqrt{7}$$

$$BF = \sqrt{180} + 3\sqrt{80} - 2\sqrt{125}$$

$$BG = 3\sqrt{28} - 2\sqrt{700}$$

$$BH = 2\sqrt{12} - 5\sqrt{27} + 7\sqrt{75}$$

$$BI = 2\sqrt{108} - 5\sqrt{3} + \sqrt{48}$$

التمرين 3: أنشر ثم بسط ما يلي:

$$A = (\sqrt{3} - 2)^2$$

$$B = (\sqrt{3} - 5)^2$$

$$C = (2\sqrt{5} - 3)(3\sqrt{5} + 2)$$

$$D = (2\sqrt{3} - 1)(6 - \sqrt{3})$$

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

$$F = (\sqrt{2} + 3)^2 - 11$$

$$G = (\sqrt{6} - \sqrt{3})^2$$

$$H = (3 - \sqrt{5})^2 + 2(25 + \sqrt{45})$$

$$I = (5 + \sqrt{2})^2$$

التمرين 4:
بسط ما يلي:

1) $\sqrt{27} + \sqrt{12}$;

2) $\sqrt{8} + \sqrt{12}$;

3) $\sqrt{12} + \sqrt{75}$;

4) $\sqrt{80} - \sqrt{27}$;

5) $2\sqrt{5} + 7\sqrt{5} - \sqrt{180}$

6) $\sqrt{32} \times \sqrt{14}$;

7) $\sqrt{12} + \sqrt{75} - \sqrt{27}$;

8) $\sqrt{20} - \sqrt{27} + \sqrt{45} - \sqrt{3} + \sqrt{48} - \sqrt{125}$

9) $\sqrt{32} + \sqrt{18}$;

10) $\sqrt{32} \times \sqrt{18}$

11) $\sqrt{75} \times \sqrt{32}$;

12) $\sqrt{171}$;

3) $\sqrt{98} - \sqrt{32} - \sqrt{18}$;

14) $\sqrt{147}$;

15) $\sqrt{10^{24}}$;

16) $\sqrt{675}$;

17) $\sqrt{841}$;

18) $\sqrt{8} + \sqrt{50} - \sqrt{18}$; 19)

$\sqrt{121 \times 225 \times 3}$; 20)

$\sqrt{\frac{441}{784}}$;

21) $\sqrt{20} + \sqrt{45}$;

22) $\sqrt{20} \times \sqrt{45}$;

23) $(\sqrt{20} + \sqrt{45})^2$;

24) $\sqrt{\frac{625}{1225}}$;

25) $\frac{\sqrt{1000} \times \sqrt{500}}{500}$;

26) $\sqrt{3^2 + 4^2}$;

27) $\sqrt{\frac{8}{27}} \times \sqrt{\frac{3}{50}}$;

28) $\sqrt{\frac{3}{10}} \times \sqrt{\frac{270}{8}}$;

29) $\sqrt{\frac{25}{4}} + \sqrt{\frac{1}{36}}$;

30) $\sqrt{15^2 - 9^2}$;

31) $\sqrt{\frac{0,04}{9}}$;

32) $\sqrt{10^{17}}$;

33) $4\sqrt{0,5}$;

34) $\sqrt{2000}$;

35) $3\sqrt{500}$;

36) $3\sqrt{3^3 \times 5 \times 2^4}$;

37) $\sqrt{27} - \sqrt{108} + \sqrt{147}$;

38) $3\sqrt{20} + 4\sqrt{45} - \sqrt{80}$;

39) $\sqrt{5(3^2 + 4^2)}$

40) $\frac{18\sqrt{24}}{\sqrt{54}} \times \sqrt{\frac{2}{9}}$

41) $\sqrt{\frac{29,16}{0,36}}$;

42) $(\sqrt{3})^3 - \sqrt{15} \sqrt{5}$;

43) $\sqrt{\sqrt{169} - \sqrt{144}}$

44) $\frac{1}{\sqrt{1 + \frac{7}{\sqrt{1 + \sqrt{6400}}}}}$