

for Racional numbers.

Ex 1

$$A = 3\sqrt{18} = 3\sqrt{9 \times 2} = 3\sqrt{9} \times \sqrt{2} = 3 \times 3\sqrt{2} = \boxed{9\sqrt{2}}$$

$$B = 7\sqrt{12} = 7\sqrt{4 \times 3} = 7\sqrt{4} \times \sqrt{3} = 7 \times 2\sqrt{3} = \boxed{14\sqrt{3}}$$

$$\begin{aligned} C &= 7\sqrt{5} + 3\sqrt{20} = 7\sqrt{5} + 3\sqrt{4 \times 5} = 7\sqrt{5} + 3 \times 2\sqrt{5} \\ &= 7\sqrt{5} + 6\sqrt{5} \\ &= \boxed{13\sqrt{5}} \end{aligned}$$

$$\begin{aligned} D &= 2\sqrt{8} - 5\sqrt{24} = 2\sqrt{4 \times 2} - 5\sqrt{4 \times 6} = 2 \times 2\sqrt{2} - 5 \times 2\sqrt{6} \\ &= \boxed{4\sqrt{2} - 10\sqrt{6}} \end{aligned}$$

$$E = (4\sqrt{5})^2 = 4^2 \times \sqrt{5}^2 = 16 \times 5 = \boxed{80}$$

$$F = (3\sqrt{2})^3 = 3^3 \times \sqrt{2}^3 = 27 \times \sqrt{2}^2 \times \sqrt{2} = 27 \times 2\sqrt{2} = \boxed{54\sqrt{2}}$$

$$G = 2\sqrt{5} \times 3\sqrt{10} = 6\sqrt{50} = 6\sqrt{25 \times 2} = 6 \times 5\sqrt{2} = \boxed{30\sqrt{2}}$$

$$H = 3\sqrt{2} \times 5\sqrt{3} \times \sqrt{6} = 15 \times \sqrt{6} \times \sqrt{6} = 15 \times 6 = \boxed{90}$$

$$I = 2\sqrt{3}(\sqrt{3} - 5\sqrt{2}) = 2 \times 3 - 10\sqrt{6} = \boxed{6 - 10\sqrt{6}}$$

$$J = (1 - 3\sqrt{5})(2\sqrt{3} - 1) = \boxed{2\sqrt{3} - 1 - 6\sqrt{15} + 3\sqrt{5}}$$

$$\begin{aligned} K &= (3\sqrt{5} - \sqrt{2})^2 = (3\sqrt{5})^2 - 2 \times 3\sqrt{5} \times \sqrt{2} + \sqrt{2}^2 \\ &= 9 \times 5 - 6\sqrt{10} + 2 \\ &= \boxed{47 - 6\sqrt{10}} \end{aligned}$$

$$\begin{aligned} L &= (3\sqrt{2} + \sqrt{3})^2 = (3\sqrt{2})^2 + 2 \times 3\sqrt{2} \times \sqrt{3} + \sqrt{3}^2 \\ &= 18 + 6\sqrt{6} + 3 \\ &= \boxed{21 + 6\sqrt{6}} \end{aligned}$$

Ex 2

$$M = \frac{2}{\sqrt{7}} = \frac{2 \times \sqrt{7}}{\sqrt{7} \times \sqrt{7}} = \boxed{\frac{2\sqrt{7}}{7}}$$

$$\begin{aligned} N &= \frac{2}{3 + \sqrt{2}} = \frac{2(3 - \sqrt{2})}{(3 + \sqrt{2})(3 - \sqrt{2})} = \frac{6 - 2\sqrt{2}}{3^2 - \sqrt{2}^2} \\ &= \frac{6 - 2\sqrt{2}}{9 - 2} \\ &= \boxed{\frac{6 - 2\sqrt{2}}{7}} \end{aligned}$$