

$$\begin{aligned}
 27) \quad B &= \frac{0.02^2 \times 16 - 4.8 \times 10^{-3}}{\sqrt{5^2 - 3^2}} \\
 &= \frac{2^2 \times (10^{-2})^2 \times 16 - 4.8 \times 10^{-3}}{\sqrt{25 - 9}} \\
 &= \frac{10^{-4} (4 \times 16 - 48)}{\sqrt{16}} \\
 &= \frac{10^{-4} (64 - 48)}{\sqrt{4}} \\
 &= \frac{16 \times 10^{-4}}{4}
 \end{aligned}$$

$$\text{Thus } B = 4.0 \times 10^{-4}$$

$$\begin{aligned}
 C &= \frac{4 \times 1 + \frac{1 \times 2}{2 \times 2} + \frac{1}{4}}{\frac{1 \times 4}{1 \times 4} - \frac{1 \times 2}{2 \times 2} - \frac{1}{4}} \\
 &= \frac{4 + 2 + 1}{4 - 2 - 1}
 \end{aligned}$$

$= \frac{7}{1}$ which is greater than zero

Thus, C is positive

$$\begin{aligned}
 3) \quad D &= 2\sqrt{32} + \sqrt{50} - 5\sqrt{18} + 2\sqrt{8} \\
 &= 2\sqrt{4^2 \times 2} + \sqrt{5^2 \times 2} - 5\sqrt{3^2 \times 2} + 2\sqrt{2^2 \times 2} \\
 &= 8\sqrt{2} + 5\sqrt{2} - 15\sqrt{2} + 4\sqrt{2}
 \end{aligned}$$

$$D = 2\sqrt{2} \text{ where } a = 2$$

$$\begin{aligned}
 4) \quad E &= (2\sqrt{3} - 2)^2 + 2(5\sqrt{3} - 8) \\
 &= (2\sqrt{3})^2 - 2(2\sqrt{3})(2) + 2^2 + 10\sqrt{3} - 16 \\
 &= 12 - 8\sqrt{3} + 4 + 10\sqrt{3} - 16
 \end{aligned}$$

$$E = 2\sqrt{3} \text{ which is verified}$$

$$\begin{aligned}
 5) \quad D^2 + E^2 &= (2\sqrt{2})^2 + (2\sqrt{3})^2 \\
 &= 4 \times 2 + 4 \times 3 \\
 &= 20 \\
 \text{but } (2\sqrt{5})^2 &= 4 \times 5 \\
 &= 20
 \end{aligned}$$

Thus, $D^2 + E^2 = (2\sqrt{5})^2$
by comparison.