

1st - exercise

$$\Rightarrow \text{ratio of green balls is } \frac{2 \times 20}{5 \times 20} = \frac{40}{100}$$

So, % of green balls is 40%.

$$\begin{aligned} \text{hence \% of black balls} &= 100 - (\% \text{ of other balls}) \\ &= 100 - 65 \\ &= 35\%. \end{aligned}$$

$$\text{Thus no. of balls} = \frac{100 \times 42}{35} = 120$$

False.

$$\begin{aligned} \Rightarrow \left(\frac{1-\sqrt{2}}{2\sqrt{2}-3} \right)^2 &= \left(\frac{(1-\sqrt{2}) \times (2\sqrt{2}+3)}{(2\sqrt{2}-3)(2\sqrt{2}+3)} \right)^2 \\ &= \left[\frac{2\sqrt{2}+3-4-3\sqrt{2}}{8-9} \right]^2 = \left(\frac{-1-\sqrt{2}}{-1} \right)^2 \\ &= 1+2\sqrt{2}+2 = (3+2\sqrt{2}). \end{aligned}$$

$$\begin{aligned} \text{Now, } (3+2\sqrt{2})(3-2\sqrt{2}) &= (3)^2 - (2\sqrt{2})^2 \\ &= 9 - 8 = \boxed{1} \end{aligned}$$

$$\text{And, } \left(\frac{\sqrt{5}+\sqrt{3}}{\sqrt{2}} \right) \left(\frac{\sqrt{5}-\sqrt{3}}{\sqrt{2}} \right) = \frac{(\sqrt{5})^2 - (\sqrt{3})^2}{\sqrt{2}^2} = \frac{5-3}{2}$$

Thus, it is a table of proportionality $\boxed{= \square}$

True