

Changing the Subject of a Formula PPQ's - Solutions

$$\begin{aligned} \textcircled{1} \quad 4(2n+x) &= 6x-5 \\ 8n+4x &= 6x-5 \\ 8n &= 2x-5 \\ n &= \frac{2x-5}{8} \end{aligned}$$

$$\begin{aligned} \textcircled{2} \quad 7-6f &= 4(5-2r) \\ 7-6f &= 20-8r \\ 7-6f+8r &= 20 \\ 8r &= 20-7+6f \\ 8r &= 13+6f \\ r &= \frac{13+6f}{8} \end{aligned}$$

r is negative here so I'll move to LHS.

$$\begin{aligned} \textcircled{3} \quad 2n+5 &= 3(8-3t) \\ 2n+5 &= 24-9t \\ 2n+5+9t &= 24 \\ 9t &= 24-2n-5 \\ 9t &= 19-2n \\ t &= \frac{19-2n}{9} \end{aligned}$$

$$\begin{aligned} \textcircled{4} \quad 4(d-2e) &= 7+3e \\ 4d-8e &= 7+3e \\ 4d &= 7+3e+8e \\ 4d &= 7+11e \\ d &= \frac{7+11e}{4} \end{aligned}$$

$$\begin{aligned} \textcircled{5} \quad h &= \sqrt{t-d} \\ h^2 &= t-d \\ h^2+d &= t \\ d &= t-h^2 \end{aligned}$$

$$\begin{aligned} \textcircled{6} \quad \sqrt{3n+4p} &= m \\ 3n+4p &= m^2 \\ 3n &= m^2-4p \\ n &= \frac{m^2-4p}{3} \end{aligned}$$

$$\begin{aligned} \textcircled{7} \quad w(5-3t) &= 2(t+5) \\ 5w-3tw &= 2t+10 \\ 5w-10 &= 2t+3tw \leftarrow \text{brought } t\text{'s to RHS} \\ 5w-10 &= t(2+3w) \quad \text{to be positive} \\ \frac{5w-10}{2+3w} &= t \end{aligned}$$

$$\begin{aligned} \textcircled{8} \quad y &= \frac{x+9}{2x-5} \\ y(2x-5) &= x+9 \\ 2xy-5y &= x+9 \\ 2xy-x &= 9+5y \\ x(2y-1) &= 9+5y \\ x &= \frac{9+5y}{2y-1} \end{aligned}$$

$$\begin{aligned} \textcircled{9} \quad \frac{d(2+e)}{5-e} &= 3 \\ 2d+de &= 3(5-e) \\ 2d+de &= 15-3e \\ 3e+de &= 15-2d \\ e(3+d) &= 15-2d \\ e &= \frac{15-2d}{3+d} \end{aligned}$$