Instruction: Solve the following equations.

1. $\boxed{v = \pm 6}$

2. $\boxed{x = \pm\frac{1}{5}}$

3. $\boxed{y = \frac{2}{3}}$

4. Multiply both sides by the lowest common denominator, $x(x+1)$:

$$\begin{aligned}
\frac{6}{x} - \frac{3}{x+1} &= 2 \\
x(x+1)\left(\frac{6}{x} - \frac{3}{x+1}\right) &= 2x(x+1) \\
6(x+1) - 3x &= 2x(x+1) \\
6x + 6 - 3x &= 2x^2 + 2x \\
0 &= 2x^2 - x - 6 \\
0 &= (2x+3)(x-2) \\
x &= \boxed{-\frac{3}{2}, 2}
\end{aligned}$$

5. $\boxed{m = \frac{1}{2}, \frac{3}{2}}$

6. Multiply both sides by the lowest common denominator, x:

$$\begin{aligned}
10x - \frac{1}{x} &= 3 \\
x\left(10x - \frac{1}{x}\right) &= 3x \\
10x^2 - 1 &= 3x \\
10x^2 - 3x - 1 &= 0 \\
(5x+1)(2x-1) &= 0 \\
x &= \boxed{-\frac{1}{5}, \frac{1}{2}}
\end{aligned}$$

7. Multiply both sides by the lowest common denominator, $2x(x-1)$:

$$\begin{aligned}
\frac{x}{x-1}+\frac{x-1}{x} &= \frac{5}{2} \\
2x(x-1)\left(\frac{x}{x-1}+\frac{x-1}{x}\right) &= \left(\frac{5}{2}\right)2x(x-1) \\
2x^2+2(x-1)^2 &= 5x(x-1) \\
2x^2+2(x^2-2x+1) &= 5x^2-5x \\
2x^2+2x^2-4x+2 &= 5x^2-5x \\
4x^2-4x+2 &= 5x^2-5x \\
0 &= x^2-x-2 \\
0 &= (x+1)(x-2) \\
x &= \boxed{-1,2}
\end{aligned}$$

8. Multiply both sides by the lowest common denominator, $2x$:

$$\begin{aligned}
\frac{3x}{2} &= \frac{24}{x} \\
2x\left(\frac{3x}{2}\right) &= 2x\left(\frac{24}{x}\right) \\
3x^2 &= 48 \\
x^2 &= 16 \\
x &= \boxed{\pm 4}
\end{aligned}$$

9. Multiply both sides by the lowest common denominator, $11(x-7)$:

$$\begin{aligned}
\frac{11}{x-7} &= \frac{x-7}{11} \\
11(x-7)\left(\frac{11}{x-7}\right) &= 11(x-7)\left(\frac{x-7}{11}\right) \\
121 &= (x-7)^2 \\
121 &= x^2-14x+49 \\
0 &= x^2-14x-72 \\
0 &= (x-18)(x+4) \\
x &= \boxed{-4,18}
\end{aligned}$$

10. Multiply both sides by the lowest common denominator, 3:

$$\begin{aligned} n + \frac{2}{3} &= 9n^2 \\ 3\left(n + \frac{2}{3}\right) &= 3(9n^2) \\ 3n + 2 &= 27n^2 \\ 0 &= 27n^2 - 3n - 2 \\ 0 &= (3n-1)(9n+2) \\ n &= \boxed{-\frac{2}{9}, \frac{1}{3}} \end{aligned}$$