DIRECTIONS: Solve. Check for extraneous roots.

1. $z^2 - \frac{15z}{8} - \frac{1}{4} = 0$

$z = -\frac{1}{8}, 2$

2. $\frac{a^2}{24} - \frac{a}{3} + \frac{1}{2} = 0$

$a = 2, 6$

3. $\frac{5b^2}{8} - \frac{1}{2} = -b$

$b = \frac{2}{5}, -2$

4. $w^3 - \frac{5w^2}{6} - w = 0$

$w = -\frac{2}{3}, 0, \frac{3}{2}$

5. $\frac{d}{4} - \frac{1}{5} \leq 0$

$d \leq \frac{4}{5}$

6. $\frac{m+1}{5} + \frac{m+2}{7} < \frac{4}{5}$

$m < \frac{11}{12}$

7. If $\frac{2}{3}$ of a number is 4 more than $\frac{1}{2}$ of the number, what is the number?

24

8. $\frac{2}{3} = \frac{1}{z} - \frac{5}{6z}$

$z = \frac{1}{4}$

9. $\frac{a-7}{a+3} = \frac{a-9}{a-3}$

$a = 12$

10. $\frac{1}{v-6} + \frac{1}{v+6} = \frac{2v}{v^2-36}$

$v \neq \pm 6$
(all other real numbers are OK)

11. $6 + \frac{12}{x^2-1} = \frac{5}{x-1}$

$x = \frac{1}{3}, \frac{1}{2}$

12. $\frac{n-4}{3n-2} - \frac{n-7}{n+1} = 0$

$n = 1, 9$

13. $\frac{u+3}{4u+7} = 1 + \frac{2(1-2u)}{5u-1}$

$u = -5, 2$